

1938
Archives QH 76.5.S6 U5 Pt. 1
United States. National Park
Service.
Southwestern
Monuments; monthly reports

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UNITED STATES DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SOUTHWESTERN
MONUMENTS

MONTHLY REPORTS

January - June 1938

SOUTHWESTERN MONUMENTS

MONTHLY REPORT



J A N U A R Y - - - 1 9 3 8

DEPARTMENT	OF	THE	INTERIOR
NATIONAL	PARK	SERVICE	

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CONCERNING THE SEAL OF THE S.W. MONUMENTS

By The Boss

We have many newcomers in our Service who probably have wondered about the seal which adorns the cover of our monthly reports.

The original design was pitched upon about nine o'clock on the night of February 9, 1935, by J. H. Tovrea, Hugh Miller, and the Boss who were holding a Taurian session in the engineering office of the administration building. Tov. struck out a rough draft and about everyone on the place had something to say about it the next day. Some changes were made in October, 1937, and the net result now stands on its merits.

Among the Southwestern Monuments, the geologic units are represented by the mountain in the background; the prehistoric units by the ruins on the mesa in the left middle ground; the historic units by the church in the right foreground; and the botanic units by the cactus near the center. Behind and over all rises the sun of our destiny; on its way up and nothing in the world can stop us so long as we hold our Esprit de Corps.

And, just to show that we are serious but not too serious, we put the rattler in the immediate foreground with the idea that we are good fighters all, gentlemen who do not strike without warning, but when we strike we mean business. Also there is the idea that it takes the wisdom of a serpent to operate this far-flung group of the most interesting units of the National Park Service on the money we get! In the slightly revised draft of last October, Tov. put some clouds in the middle distance for which he has an artistic alibi, but being interpreted I think they symbolize the clouds of doubt as to whether we are going to get through the current fiscal year after two impoundments have been put on our appropriation. He also put the two stories on the bell tower in allusion to the never-ending argument between Tov. and the Boss as to how the Tumacacori bell tower would have been finished; the Boss, being no draftsman, is unable to show it as it really would have been but closes with this Underwoodian shot, that it certainly wasn't going to be finished that way!

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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, superintendent; Hugh M. Miller, assistant superintendent; Parke W. Soule, chief clerk; J. H. Torrea, assistant engineer; Dale S. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Matt N. Dodge, junior park naturalist; Millard Lingerma and Luis A. Castellum, clerk-stenographers; Ira G. Goodwin, CCC clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

<u>FIELD STATIONS</u>	<u>VISITORS, 1937</u>	<u>ACRES</u>
1. <u>Arches</u> , 1,000, Moab, Utah, Harry Reed, custodian - - - -		4,520.00
2. <u>Aztec Ruins</u> , 14,303, Aztec, N. Mex., T. C. Miller, cust.-		25.88
3. <u>Bandelier</u> , 14,380, Santa Fe, N. Mex., C. G. Harkins, cu.-		26,026.20
4. <u>Canyon de Chelly</u> , 1,422, Chin Lee, Ariz., Johnwill Paris, custodian - - - - -		83,840.00
5. <u>Capulin Mountain</u> , 26,100, Capulin, N. Mex., H. Farr, cu.-		680.37
6. <u>Casa Grande</u> , 33,681, Coolidge, Ariz., A.T. Ricknell, custodian; 472.50 David J. Jones, park ranger; Jimmie Rodgers, Strempel Coyle; Mervin Hale; and Teddy Savage, CCC guides and helpers.		
7. <u>Chaco Canyon</u> , 8,014, Chaco Canyon, N. Mex., L.T. McKinney, cu.	21,512.37	
8. <u>Chiricahua</u> , 9,228, Douglas, Ariz., Frank L. Fish, custodian; Enrollee Savoy and CCC Guides Homer Bennett and William Stone.	4,480.00	
9. <u>El Morro</u> , 2,298, Ramah, N. Mex., R.R. Budlong, custodian-	240.00	
10. <u>Gila Cliff Dwellings</u> , 250, Cliff, N. Mex., no custodian -	160.00	
11. <u>Gran Quivira</u> , 4,414, Gran Quivira, N. Mex., G.L. Boundey, cu..	610.94	
12. <u>Hovenweep</u> , 500, in charge of T.C. Miller, Aztec, N. Mex. -	285.80	
13. <u>Montezuma Castle</u> , 9,813, Camp Verde, Ariz., Earl Jackson, custodian; Jesse D. Jennings, park ranger.	520.00	
14. <u>Natural Bridges</u> , 740, Blanding, Utah, Zeke Johnson, cust.	2,740.00	
15. <u>Navajo</u> , 329, Kayenta, Arizona, John Wetherill, custodian; Milton Wetherill, park ranger-historian.	360.00	
16. <u>Organ Pipe Cactus</u> , 5,000, Ajo, Ariz., no custodian- - - -	330,670.00	
17. <u>Pipe Spring</u> , 1,042, Moccasin, Ariz., Leonard Heaton, cust.	40.00	
18. <u>Rainbow Bridge</u> , 300, Tonalea, Ariz., no custodian - - - -	160.00	
19. <u>Saguaro</u> , 20,000, Tucson, Arizona, no custodian- - - - -	63,284.00	
20. <u>Sunset Crater</u> , 10,000, Flagstaff, Ariz., P. Beaubien, in charge	3,040.00	
21. <u>Tonto</u> , 5,368, Roosevelt, Ariz., Thomas Onstott, in charge. -	1,120.00	
22. <u>Tumacacori</u> , 18,472, Box 2225, Tucson, Ariz., L.R. Caywood, cu.	10.00	
23. <u>Walnut Canyon</u> , 10,772, Flagstaff, Ariz., Paul Beaubien, rang.	960.00	
24. <u>White Sands</u> , 91,532, Alamogordo, N. Mex., Tom Charles, cust. 142,987.00 James B. Felton, park ranger, Joe Shepperd, grader operator.		
25. <u>Wupatki</u> , 2,080, Flagstaff, Ariz., P. Beaubien in charge- -	35,865.00	
26. <u>Yucca House</u> , 400, Cortez, Colo., T.C. Miller, Aztec, N. Mex.-	9.60	
Total--291,426 visitors last year, 1,132 sq. miles; acres-		724,619.96

OPENING

By Superintendent Frank Pinkley,
Southwestern Monuments,
Coolidge, Arizona.

Dear Mr. Director:

The month of January has been one of unusually mild weather over our whole district. Where we should have had snow banks, our men are reporting flowers in bloom. This is fine for the winter visitors who have reached Tucson, Phoenix, and El Paso in large numbers, but the range men, who expect the winter rains and snows to fill the ground with moisture for the spring and summer grass, are none too pleased, nor are the irrigation farmers who look to the snows and rains of winter to fill their reservoirs.

Business seems to be holding up well though the copper mines are easing out men as copper prices go softer. There is some unrest among the cotton planters, the cause being the uncertainty as to what the Government is going to do about next year's crop. On the whole, the situation seems not at all critical in Arizona and New Mexico and business seems pretty good.

Few personnel changes took place during the month. We had to abolish two positions at the CCC camp at Bandelier in order to get enough funds to continue the construction we have under way there. One of the CCC guides from the spur camp at Casa Grande went over the hill and has been replaced with Teddy Savage who is breaking in nicely and bids fair to come up to the high average the other boys are setting in guide work.

Personnel living conditions were improved slightly during the month: a gas refrigerator went out for the ranger quarters at Montezuma Castle and some overhauling is being done in the naturalist quarters at headquarters. Bad housing conditions continued at Navajo, Walnut Canyon, and El Morro; bad water conditions continued at El Morro and White Sands. We are having a long delay in getting personnel papers through for the changes which must be made in order to fill positions at Aztec, Navajo, and Montezuma Castle. This delay caused us to be undermanned at Aztec for the month; the Custodian there having to put in considerable overtime.

We had a serious fire at Bandelier CCC camp, preliminary estimates indicating a loss in building of \$800 and of equipment about \$4,200. Boards of investigation and disposal have been appointed and have not yet had enough time to make a report. First report was made to us by wire while the fire was still burning and preliminary forms went through promptly to the Region and to you. We hope we can share in the emergency funds to replace this loss promptly, otherwise our work is going to be sadly handicapped in the construction we are carrying on at Bandelier.

OPENING (CONT.)

The spur camp at Casa Grande has been opening the adobe pit, making adobes and getting started on one building of the utility group. They have the concrete foundation in and about four feet of wall up. We get considerable amusement out of the requirements of the various branches and inspectors in regard to this camp. In a spur camp, which is supposed to be rather temporary, we now have a main house about 140 feet long by 20 feet wide and two other houses about 20 feet by 20 feet. We have electric refrigerators, electric lights, running water, sewage system, a heating plant, and hot water for shower baths, and are gradually catching up with the other requirements. We are now starting an educational service for these 24 boys. We have about 70-odd signatures for the various classes and will start with some 12 or 14 instructors. It seems like a lot of overhead on a spur camp; the requirements are pretty stiff. We worked this project up as an experiment to determine if it was feasible to place spur camps at several of our monuments where we are badly in need of construction but cannot seem to share in any emergency funds, cannot get construction money under the regular appropriation, and have not enough projects to keep a regular sized CCC camp busy.

Our financial problems continue to disturb us. Lack of funds is causing some inefficiency and will probably cause more before we get through the present fiscal year. The point is that with a little more money we could do a lot more work and deliver a lot more service. We haven't good protection now at several of our monuments and the outlook into the future as the visitor season opens up at some of our places which are now closed by the weather, is rather gloomy. It looks like we will not have funds enough to put on the temporary help which in turn means that we will not be able to give adequate protection nor will we be able to give good service.

So long as we keep CCC camps at Bandelier and Chiricahua, we carry little fire risk; if these camps are moved this year we will immediately be carrying a big hazzard at both places. We have a hot spot at Saguaro and there is no particular reason, except that a kind Providence be on our side, why the whole top of the Rincon Mountains should not be burned off this summer and if that occurs, we will certainly come in for a lot of criticism because of the lack of protection. The answer is, of course, to get enough funds to handle these jobs should the occasion to do so arise.

The Organ Pipe Cactus National Monument is wide open to mountain sheep poachers, our funds thus far including nothing to protect it against vandalism of this or any other kind. Organ Pipe doesn't need much; no roads; no trails; very little housing or water development, but it does need protection and considerable study. At least one man's time should be devoted to it, five hundred square miles of country is worth that if it is worth anything.

Cordially,

Frank Orinley
Superintendent.

CONDENSED REPORT

IN WHICH ARE GIVEN THE HIGHLIGHTS OF THE MONTH

Flagstaff, Arizona,
January 1, 1938.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for the month of January, 1938, follows:

<u>TRAVEL</u>	<u>Jan.</u> <u>1938</u>	<u>Jan.</u> <u>1937</u>	<u>Jan.</u> <u>1936</u>	<u>Travel Year</u> <u>To Date</u>
Arches	25*	---	---	261
Aztec Ruins	798	278	288	2,945
Bandelier	298	231	275	2,476
Canyon de Chelly	14	3	12	212
Cabulin Mountain	250	600	---	2,250
Casa Grande	4,766	3,744	3,170	12,843
Chaco Canyon	73	89	240	685
Chiricahua	583	241	250	2,292
El Morro	81	7	4	540
Gila Cliff Dwelling	0*	---	---	25
Gran Quivira	103	174	287	713
Hovenweep	0*	---	---	0
Montezuma Castle	599	172	312	2,441
Natural Bridges	0*	---	---	147
Navajo	4	---	---	78
Organ Pipe	700*	---	---	2,800
Pipe Spring	151	---	307	560
Rainbow Bridge	0	---	---	66
Saguaro	3,000*	1,064	800	8,100
Sunset Crater	100*	---	80	1,483
Tonto	679	438	751	1,539
Tumacacori	1,943	1,964	1,607	4,493
Walnut	231	25	285	1,886
White Sands	4,730	6,007	4,402	19,731
Wupatki	63	---	106	313
Yucca House	0*	---	---	70
Totals	<u>19,191</u>	<u>15,577</u>	<u>13,960</u>	<u>68,949</u>

*Estimated.

Although several monuments report a falling off of travel as compared with January, 1937, the Southwestern Monuments as a unit shows an INCREASE

CONDENSED REPORT (CONT.)

OF TRAVEL over last month and over January of last year. A detailed discussion of January visitor records is made on page 66 of this report, and a tabulation for comparisons is shown on page 67.

000 GENERAL

010 Matters of Unusual Interest or Importance.

Bandelier: A fire on the morning of January 17 destroyed the garage, tools, and one truck. The total loss is estimated at \$5,000. (see p. 37).

Fire Ruins: The Mt. States Tel. and Tel. Co. has offered to put their lines underground if the Park Service will dig the trench and lay the cable. (See p. 19).

Mongol: Funds are needed badly to plaster-cast inscriptions for permanent preservation (see p. 13).

Headquarters: Approximately half of the 55,000 new Southwestern Monuments descriptive folders have been received.

Walnut Canyon: Analysis of travel figures shows the inadequacy of present facilities for handling the public. Walnut Canyon proves to be the western gateway to the Southwest and deserves development. (see p. 37).

020 Weather

For the second consecutive month, weather reports from the several monuments indicate that the weather has been consistently mild. "Dry", "balmy", "Ideal", "springlike", "excellent", "like spring", and "fair" are some of the terms used by the field men in reporting from their monuments this month. Tumacacori reports the greatest variety with "two inches of snow on January 20 and the rest of the month so warm that the cottonwood buds are swelling".

022 In Approaches

Arches: Aside from a few days, the approach road has been open and in good condition throughout the month (see p. 51).

100 ADMINISTRATIVE

123 Visits by National Park Service Personnel

Aztec Ruins: Gordon Vivian, L. T. McKinney, W. C. Kruger, E. A. Rose, I. W. Hitchcock.

Bandelier: Erik Reed, Ward Yeager, H. L. Bill, I. A. McClatchy, Cecil Day, C. E. Richey, J. E. Kell, C. E. London.

Casa Grande: J. Felton, Wm. Macy, Jesse Jennings.

Chiricahua: Luis Castellum.

El Morro: C. N. Could, Erik Reed.

White Sands: Adrey Borell, H. Cornell, Lackey.

150 New Equipment

Montezuma Castle: One gas refrigerator from headquarters (see p. 41).

180 Circulars, Placards, and Publicity.

Headquarters: Twenty one thousand nine hundred of the new Southwestern Monuments folders have been received for distribution.

CONDENSED REPORT (CONT.)

They were prepared at the Government Printing Office, Washington, D. C.

Montezuma Castle: The United Artists color-film scenic reels, "Wonders of Arizona", will contain views taken in this monument. They will be released after the middle of the year and will be available in the 16 mm. size for rental (See p. 40).

White Sands: Bird life keynoted last month's usual volume of publicity in local newspapers (see p. 47).

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

210 Maintenance, Unusual

Casa Grande: A program of cleanup about Compound B has been carried out. (See p. 35).

Chiricahua: Unusual highway maintenance was necessary during the latter part of December because of the heavy snow (see p. 16).

One half mile of the Upper Rhyolite Trail has been maintained.

Pipe Spring: Considerable has been accomplished in the way of removing unsightly weeds and dead leaves (see p. 22).

Walnut Canyon: In cleaning the cistern, it was necessary to scoop out 42 tons of water (see p. 38).

220 Improvements

El Morro: Roads in the monument have been improved with the cutting down of high centers and the filling of holes (see p. 12).

Navajo: Retaining walls, grades, and culverts have been built into the trail to the ruins (see p. 25).

Pipe Spring: Twenty cottonwood trees have been planted (see p. 22).

Tonto: Considerable trail work has been done. The pipe line has been protected from cattle damage (see p. 24).

230 New Construction

231 CCC Construction

Bandelier: Tyuonyi ruins stabilization has been completed and is reported a fine job (see p. 27). Pipe connections to the 20,000 gallon reservoir and to the fire hydrants are being installed. The east side wall of Hotel Unit No. 2 is up to lintel height and the remainder is to sill height. All doors and five window frames have been set. In the Employee's Dormitory, two rooms are up to viga height, and the other five up to lintel height. Ten pieces of furniture have been turned over to the custodian. The rock quarry has been in operation all month. (See p. 31).

Casa Grande: The new shop building is up to the four foot height. (see p. 35).

Chiricahua: (During December, 100 square yards of banks were sloped one half mile north of the Bonita Highway - Sugar Loaf.

Trail intersection and 200 square yards of banks were sloped one half mile south of Bonita Park. In the Employees' Residence, the rock work is complete, the roof in place, and framing for the partitions has been finished. (See p. 16). January accomplish-

ments include the sloping of 250 square yards of banks two miles north of the Bonita - Sugar Loaf intersection, surfacing of one fourth mile of the Bonita Highway and one half of the Sugar Loaf Trail, and the maintenance of one and three-fourths miles of horse trails. Plastering has been finished in the Employees' Residence with plumbing installed in the bathroom. The water line from the Headquarters Main to the Employees' Residence has been completed and work started on the Utility Area Extension Project.

232 R. D. Construction

White Sands: Powerhouse construction is 75 percent complete and Residence No. 2 is in the finishing stages. The wall around the gas and oil houses has been started (see p. 49).

300 ACTIVITIES OF OTHER AGENCIES

310 Contractors

Chiricahua: Ed. Riggs is planning to try out horseback service this coming season (see p. 15).

320 Cooperating Governmental Agencies

Chiricahua: W. Reed, S. G. Dowell, Hutchins, and Keating of the State Highway Department were visitors. (See p. 15).

Gila Cliff Dwellings: The Forest Service has constructed sufficient fence to exclude stock from the ruins. Salvage materials and time was donated. This is an example of the fine spirit of cooperation and helpfulness of this Bureau. (See p. 52).

Headquarters: The Forest Service Nursery at Superior donated 100 desert Broom seedlings for planting about Headquarters and Casa Grande buildings.

Pipe Spring: For the past six months a building has been furnished to the Division of Grazing **which has been conducting a survey** in the surrounding areas. The building **was carefully used** and left in excellent condition (see p. 23).

Walnut Canyon: Coconino County spent four days in grading approach roads to the monument (see p. 38).

330 Cooperating Non-government Agencies

Headquarters: The consistent generous aid of the Boyce Thompson Arboretum has been continued this month in identifying plants and preparing botanical specimens for display. Headquarters and Casa Grande personnel aided Mr. W. Langdo Kihn, artist for the National Geographic Society. (See p. 34).

250 Donations and Accessions

Banuelier: The United States Weather Bureau is shipping equipment to establish a cooperative weather observation station (see p. 27).

Tumacacori: Two and one half tons of unassembled museum cases have been received (see p. 57).

Walnut Canyon: The Museum of Northern Arizona has furnished the monument with eight volumes of Museum Notes (see p. 38).

CONDENSED REPORT (CONT.)

400 FLORA, FAUNA, AND NATURAL PHENOMENA

410 Ranger, Naturalist, and Guide Service

Casa Grande: Guide Service and Educational Work required 102 CCC man-days. Buster Baldwin replaced Johnny Cocks as CCC Guide, and Teddy Savage was added to the Guide Force. (See p. 35). A "Desert Trail" is being worked out to guide exceptionally interested persons to archeological and botanical features of the monument not reached in the guide program. This self-guiding trail is an experimental as well as a service and educational feature (see p. 36).

Chiricahua: James Minton relieved William Stone and Enrollee Savoy was added to the force of CCC Guides (see p. 15).

El Morro: The Custodian wishes that he were quintuplets as he is finding difficulty in being at several places at once to maintain the needed guide as well as protective service (see p. 9).

420 Museum Service:

Montezuma Castle: The table case obtained from Headquarters now houses the interesting textile exhibit (see p. 42).

460 Birds

Gran Quivira: A check list is being worked up; the January record shows 22 species (see p. 55).

Headquarters: Bird-banding operations handled 98 birds.

Montezuma Castle: Bird Notes for January appear on page 44.

Tumacacori: Sixty nine birds were handled this month (see p. 58).

Bandelier, Navajo, Pipe Spring, and Walnut Canyon bird-banding and observational records will be found under their respective reports (see index). The establishment of a new bird-banding substation at Bandelier is a big step in the progress of this activity in the Southwestern Monuments. (See p. 27).

470 Animals

Gran Quivira: "Skunks make nice pets", (see p. 55).

Montezuma Castle: Skunk photographed sorrowing over damaged den under floor of old shed (see p. 42).

White Sands: On the trail of the elusive porcupine (see p. 49).

480 Miscellaneous

Chaco Canyon: Threatening Rock movements occasion comment (see p. 54).

500 USE OF FACILITIES BY THE PUBLIC

510 Increase or Decrease of Travel

Headquarters: Total travel to the monuments shows an increase over that of December, 1937, and over January, 1937. (See "Visitor Statistics" under Headquarters Report).

530 Newsworthy Visitors

Casa Grande and Headquarters: W. Langdon Kihn, artist.

Chiricahua: Dick Bird, writer and photographer, gathered material for an article for a Canadian magazine (see p. 15).

Tumacacori: Father Juan, supervisor in charge of the San Miguel Mission of California (see p. 56).

CONDENSED REPORT (CONT.)

600 PROTECTION

610 Police

El Morro: Inadequate! (See p. 11).

Montezuma Castle: For the report of the apprehension of small boy "firebugs" see page 41.

620 Fire

Bandelier: On January 17, fire destroyed the garage, tools, and one truck. Although handicapped by lack of water pressure, the custodian prevented adjoining buildings from burning (see p. 27).

Montezuma Castle: Mischievous small boys set a leaf fire which caused some damage. They were apprehended by the custodian and ranger (see p. 41).

650 Signs

Walnut Canyon: Seven signs were painted and placed (see p. 38).

900 MISCELLANEOUS

Arches: The custodian announces the discovery of a new natural bridge easily accessible from the monument (see p. 51).

Headquarters: Possibility of some stabilization work on the famous San Xavier Mission near Tucson is discussed on page 58.

MAIL COUNT

Incoming:

Official	1,935	
Personal	<u>1,325</u>	0
Total incoming		3,260

Outgoing:

Official only	<u>2,696</u>	
Total outgoing		<u>2,696</u>

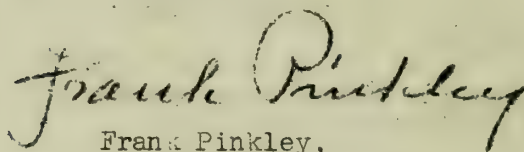
TOTAL POSTAL MAIL	5,956
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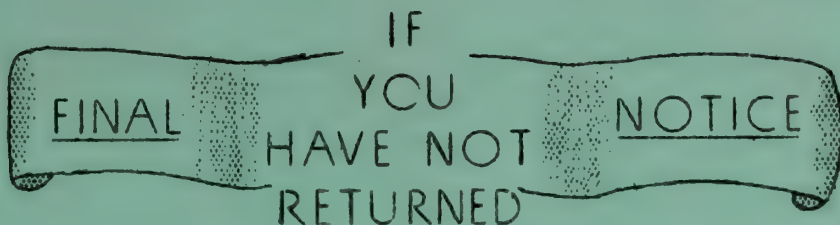
Telegrams:

Incoming	25	
Outgoing	<u>25</u>	
Total telegrams		<u>50</u>

GRAND TOTAL PIECES OF MAIL HANDLED	6,006
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Cordially,


Frank Pinkley,
Superintendent.



the mailing card which was enclosed with the December number of our Monthly Report, it will now cost you three cents to remain on our mailing list. We think it is worth that much, but you may differ with us or you may not have three cents. In either case, we bid you Godspeed and hope you have a pleasant journey through 1938 though you may never know whether we survive the financial rocks ahead of us or not. With part of our appropriation impounded, it is going to take a nice hand on the rudder to get through.

If you should have three cents and can't find your December number in order to recover that mailing card which would have come free, and still wish to keep track of the best unit of the National Park Service, you had better write us a letter to that effect or your name will be cast into the outer darkness. Al. comes along just in time to remind me that a one cent postal card would turn the trick and I had to tell him that I feel sorry for Mr. Farley and his boys; maybe they got an impoundment order too and the extra two cents may be needed over in the Postal Department just like it is with us, so I will let it stand: you write us a letter and not a postal card. It is true we furnished you with only a card to write to us in that green insert in the December number, but we are spending another man's money and you, presumably, are spending your own. Al. says he thinks my real reason is I don't want the postal boys to see what you say about the Monthly Report on a postal card, but I know that isn't true because if you didn't like it you wouldn't spend one cent in telling me so unless it made you mad and then you would probably put a special delivery stamp on it so it wouldn't have time to cool off on the way. But our Report doesn't make anybody mad except now and then and he is generally within our Service.

Quite seriously, we would be glad to take a hundred names off our mailing list, but we don't want to take off one who is getting real use from the report. The word Service was put in National Park Service with some forethought and we will be glad to serve you. If it isn't a service, let neither of us be put to any further trouble.

Cordially,

Frank Pinkley
Frank Pinkley,
Superintendent.

HOW TO USE THE MONTHLY REPORT

By The Boss

The way to get the greatest use of this report each month would be to read it from end to end. A surprising number of people who receive it tell us they do.

If you cannot spend that much time with it, we might point out that we have put it together so you can reach any part of it quickly and easily.

The Report is divided into two main parts:

1. The Report proper, and
2. The Supplement.

The Report proper divides into three sections:

1. The Condensed Report.
2. Reports from Men in the Field.
3. Headquarters Report.

As its name indicates, the Condensed Report is a condensation of all the field reports and never exceeds six pages, thus the busy reader can get the meat of the field reports in four minutes if he has little time to spend.

The reports from the men in the field are then included almost verbatim so the interested reader may get, if he has the time, and wishes, the complete picture of what happened at any monument. The field man may also feel that he has this direct contact with the Washington Office and his report is neither suppressed nor changed in its transmission. This also automatically makes a permanent record of the field reports, since this monthly report is deposited in the files of at least fifty libraries and institutions.

The headquarters report is supposed to give a general picture of the problems of the Southwestern Monuments as a whole and the handling of those problems during the month.

Following the index page you will find the Personnel Page on which we give the list of the monuments, the name and address of the man or men in charge during the month, the area of the monument, and the number of visitors it had in the previous travel year.

At the end of the June and December reports, we include a general index of the six issues so that any article in the Supplements or the Reports for the six months can be found easily. This divides our reports for the calendar year into two volumes of about 450 pages each.

FIELD REPORTS

FROM THE MEN ON THE JOB

EL MORRO

By Robert R. Budlong, Custodian,
Ramah, New Mexico.

Visitors this month, 81; total since October 1, 540.

Oh my, my; that man is here again! And this time he's going to write a report that may be somewhat lengthy, but it is felt that it is necessary.

TRAVEL

Here comes a flock of figures: A total of 73 persons visited this monument during the travel month of January, 1938. All of these were contacted but one, and he arrived while we were in town getting supplies. Field trips made were as follows:

Guided trips around inscriptions: Ten trips; total people, 46; average people per party, 4.6; total time, 590 minutes; average time, 59 minutes.

Guided trips on trail: One trip; three persons; 65 minutes.

Unguided trips on trail (by permission): Three trips; total people 16; average people per party 5.3; total time 190 minutes; average time 63.3 minutes.

Unguided trips on trail (without permission): One trip; total people, four; time unknown.

Office visits (educational): Seven "visits"; total people, 32; average people per party, 4.6; total time, 555 minutes; average time, 79.3 minutes.

The above collection of data may need some explanation. In the first place, we have but two kinds of trips here: around inscriptions and over the trail. The trips around inscriptions should always be conducted trips, but it will be observed that one trip this month was not a conducted one. The trail trip is usually made without a guide. This is because we are single-handed here, most of the visitors come to see the inscriptions and the more interesting of those inscriptions are in Spanish. This means not only a talk on the history, but calls for interpreting of the Spanish. Those who take the trail trip usually want the exercise and the view from the top of The Rock, and there is little chance for vandalism to occur on the trail. The inscriptions, however, need constant protection. Therefore, except in unusual cases, we do not guide trail parties. Observe, also, that one trail trip was made "with-

out permission." More about this later. Our "office visits" were described in our last monthly report. They constitute our "museum" trips.

We were most agreeably surprised to have as visitors on the eighth Dr. Gould, Jack Diehl, and Erik Reed, all of the Santa Fe office. We hiked up on the trail, looked over the ruins, and spent some time in the cabin discussing official matters. They had to return to Santa Fe that evening, so, of course, their visit was far too short. Come again, and make it soon!

Dr. Donald De Leon, of the Bureau of Entomology, Ft. Collins, Colorado, and his sister, visited the monument January 13. We enjoyed their visit immensely.

WEATHER

We haven't had any; we've only had climate! This time last year we were solidly snowed-in (and running out of food). But this isn't winter; it may be spring, or fall, but never could it be called winter. We have had two light flurries of snow, but no real moisture, and moisture is something we badly need, since we had no real rain all last summer. We would have such a season as this, after making extensive preparations for a severe winter.

INSCRIPTIONS

All major inscriptions are ready for winter. They have been repencilled, and have been thoroughly coated with "Driwal" to keep out moisture. In addition, much work has been done on old, faint inscriptions, and many new ones or traces of new ones have been found. These have been pencilled and waterproffed, of course. But quite a number of these new ones are too high to be reached with a stepladder. Our present ladder is ten feet long, and entirely too short, except when I fall from the top step, as I did once this month, just to keep in practice. We shall either have to get a longer ladder or build a scaffold in order to do the work we wish to do upon these high inscriptions. I have some more things to say about inscriptions before I finish this report, but they will be put under the heading of "Protection" later on.

ROADS AND TRAILS

Much work was done on roads inside our boundaries during the month. High centers were removed, holes filled, etc. The trail around the inscriptions received considerable attention also, as did the trail leading to the top on the north side of the rock.

BOUNDARIES

Tracks of livestock inside the canyon in the rock were observed

through binoculars, and today I did a little fence-riding on foot. Found the lock on the gate leading into the canyon open. It must have been opened by striking the padlock with a hammer, which is a good way of opening padlocks when a key isn't handy. The fence had been cut in one place, and this was repaired. There has been some cutting of tree branches and some brush inside the canyon also, within the past week. The Navajos who seem to be responsible have been warned; the gate re-locked and chained, and considerable work was done filling arroyos under the bottom strand of wire on the fence where stock could get under.

PROTECTION

This report is long enough already, but I have only begun to write. "The time has come", the walrus said, "To speak of many things", and if you don't omit the remarks to follow, it may be necessary to publish the Southwestern Monuments Monthly Report in several volumes this month. Anyhow, here goes:

This relatively small area (240 acres) has been a national monument for just about 32 years. This means that it is, and has been, protected by the National Park Service. Waddya mean, "protected"? Of course, signs have been stuck over available ground when a year-around man wasn't stationed here. Rangers have been here during summer months for some years past, and much very fine work was done by the part-time custodian formerly in charge. But if you will take one look at the surface of the rock, and observe the hundreds of scars where once visitors carved their names in the rock in spite of our "protection" the thought is bound to be brought home most forcibly that "protection" in the past has been a joke. And for the present? Well, our shack (only meant for a protection from weather, and never for a "Custodian's residence") is located half a mile from the entrance gate, and around on the south side of the rock, with the entrance gate on the north side, out of sight. Observe, under our paragraph on "Visitors" that one unguided trip was made on the trail, and one past the inscriptions, "without permission." Refer to our visitor statistical record, not made a part of this report, and note that this meant, in the case of the trip over the trail, that a bunch of local people drove in, parked their car back in the trees just inside the gate, and spent heaven-only-knows how much time wandering all over the monument. Luckily, they were seen, and contacted. The trip around the inscriptions without permission was made by a group of people who drove in, parked their car on the north side unseen, wandered around the inscriptions, and were only contacted because they happened to drive around this side of the rock in order to find space enough in which to turn their car around. They didn't drive to the cabin to register. They were waved down and asked to do so. Fortunately, in this case, the people were of the type extremely interested in the preservation of these inscriptions. But how many people may have driven in, hiked around past inscriptions and trail, and driven out again unseen? To answer that only partially, just look at those scars on the rock again, where a few of them carved their names, and the answer will be in the hundreds.

Our cabin is out of sight of the gate. It is true that we have conspicuous signs at the gate pointing the way to the office; requests along the road to "Please Drive to Custodian's Office" and "Visitors Please Register at Office" and other signs warning against the carving of names, but does that mean anything? It means we have a lot of signs warning against the carving of names, but does that mean anything? It means we have a lot of signs I wish we could do without, but that is all it means. Time after time during the year I have been stationed here, I have gone around the rock to find parties of visitors inspecting the inscriptions, twice I have found people about to carve their names on the rock beside or over some of our most priceless inscriptions and have just been busy in getting there before any damage was done. We have inscriptions on both sides of the rock, and many times while I am guiding a party on the north side, a party or parties will drive to the south side and start inspecting the inscriptions there. A man can only be in one place at a time. I repeat, it is only by good fortune that we have had no damage done this year.

It is not just because that happens to be my present station that I say that here at this monument we have some of the most important original records of the past history of this region -- utterly priceless records covering several hundreds of years -- that deserve immediate and full protection, which is something we haven't had in over 30 years of governmental "protection" and also something we don't have now. At most of the monuments we are mighty short-handed, and that means, mostly, that the visitor has to be kept waiting, or doesn't receive the service we would like to give him. But I submit that that isn't so important as protection of what we have to show the visitor. That is, we may keep the visitor waiting ten minutes longer, being short-handed, than we would if we had one more man stationed there; but at least we have protection of what we have to show that visitor in numerous monuments where we are only short-handed. But here we are without protection. Visitors can drive in and go all over our monument, and we'll never be the wiser until we find the damage they've done. And so, first of all, we need to have some sort of office built between the gate and the inscriptions. That is, make sure of contacting our visitor before he has a chance to go anywhere within our boundaries. And if we can't possibly give complete protection to our inscriptions no matter how many buildings we have here, let's put a "cyclone" type of fence completely around those inscriptions, even if it will be unsightly.

Next, the inscriptions themselves: Suppose we succeed in keeping the vandal from doing damage. The majority of the inscriptions are within a few hundred feet of a road passing outside of our boundary fence. A lot of shooting at rabbits, prairie-dogs, and other things (including some of the neighbors) goes on outside that fence. The inscriptions are plainly visible from the road. How about a **stray** bullet hitting one of those inscriptions? It isn't improbable -- you should see the bullet marks on the rock now. How about vandalism before we can get a solution of that problem? How about falls on rock--

both of the rock on which the inscriptions are carved, and of rocks above the inscriptions? We have frequent rock falls here, and one old inscription dated 1666 on which I have been working for months, trying to bring out all of it, has several fresh scars right across the face of it where the rocks have fallen since I found the inscription and began work upon it. Therefore, it seems to me that quarters or no quarters, protection or no protection, we should get the necessary funds to have the following work done immediately: We should have impressions made of every one of our major inscriptions, from which, either now or in future years, exact reproductions of inscriptions can be cast in plaster. It is not at all improbable that before we get real protection of these inscriptions they may be partially or totally destroyed from one cause or another. Although I am planning to photograph every one of our hundreds of inscriptions before the year has passed, the value of a photograph of some valuable inscription is hardly comparable to the value of a plaster cast of that same inscription -- after the inscription is gone. In spite of our attempts at waterproofing inscriptions, and in spite of the protection we try to give them, many of those that were here when I first came here, a year ago, have weathered appreciably, and will soon be gone.

But this is so long I can't go more into detail, much as I would like to do so. If this outburst isn't sufficient, just let me know, and I'll put an asbestos ribbon on this typewriter and really dwell at length on the subject of making sure that in the future -- not just at present -- we will continue to have something of value here to show the visitor.

WATER

AND FURTHERMORE.....

*****SWM*****

Bud calls attention to a very serious problem in this matter of protection. There is always a hazard that some half-demented person or some ignorant person will do irreparable damage there. He is correct in his inference that putting the proclamation on the monument was no protection; name-cutters as a class being so ignorant they know nothing about the law against such vandalism. The only thing which they can understand is a man in uniform. Bud is right in saying that the visitors should be made to come past headquarters so they may be spotted and taken in charge by our Custodian as soon as they arrive. However, we would only reach a temporary solution of our problem by moving the office or residence around to the north side of the rock in order to intercept the traffic which now enters on the northeast corner of the monument. The north, west, and south sides of that monument are surrounded by patented land and the only place we reach the section line and a future public highway is on the east side of the monument. It would therefore seem more logical to move the entrance around to the east side than to

move the administration area around to the north side if any moving is to be done. Administrators, Landscapers, Engineers, Educators, and others have not yet been able to reach an agreement as to the location of a headquarters at El Morro and we expect to ask for a re-study of the whole question this spring or early summer.--F. P.

*****SWM*****

CHIRICAHUA

By Frank Fish, custodian,
Douglas, Arizona.

WEATHER

Warm rains in late December ended the first splurge of winter and until January 20, weather conditions were like cherry-blossom time; in fact, one blossom of a wild verbena was still resisting and full of life on January 19 at an elevation around 6,000 feet. January 20 started off with rain and then snow to a depth of four inches, followed by rain on the 21st, resulting in most of the snow melting. Adverse weather days: December 29, drizzling rains; January 3, rain; January 4, fog; January 9, cold wind; January 15, rain; January 20, rain and snow; January 21, rain and fog; and January 22 and 23, cold wind at Massai Point.

ROADS

Surfacing of the Elfrida-Bisbee road was completed early in January. This makes a continuous surfaced road from Bisbee to ten miles north of Elfrida, or leaves approximately 32 miles of gravelled road out of 70 into the monument. There is a stretch of 17 miles of gravelled road between the pavement at Elfrida and the pavement ten miles this side of Douglas; it is understood five and a half miles of this section will be surfaced during 1938 by the State.

The Pinery Canyon-Rodeo, New Mexico, road is evidently open, as several cars have entered the monument from the east on that route during the month and as late as this writing, January 23. However, this road crosses the Chiricahua Mountains around an elevation of 8,000 feet and may be blocked by snow at anytime between December and April.

VISITORS

	JANUARY	1938	1937
Number		583	241
No. of cars		150	54
Out of State		183 or 31.3%	
No. of States		27	
Foreign Countries		3	
Total stay in monument		27,987 minutes, or an average of 186.5 minutes per car.	

CHIRICAHUA (CONT.)

CONTACTS

	<u>1938</u>	<u>1937</u>
Number	81	3
Attendance	380	7
Total minutes	4,660	500
Percent of Contacts	65.1	2.9
Average party	4.7	2.3
Average time minutes	57.5	*166

*Only trail trips counted in 1937.

N. P. S. VISITORS

Luis Castellum, clerk-stenographer from headquarters office. Luis has been in since the 18th working on CCC matters and burning the "midnight oil" with Bill Stevenson and his force in what appears from across the room to be massive piles of paper with "high fa'luten" words.

STATE OFFICIALS

Mr. W. Reed, state engineer; Shelton G. Dowell, chairman, Highway Commission; and District Highway Engineer Hutchins. Also Patrolman Keating of the Arizona State Highway spoke a few words to the enrollees on the subject of "Safety".

FOREIGN VISITORS

Dick Bird of Regina, Canada, noted writer and photographer spent a number of days with his daughters in riding and hiking over the trails. His reactions were quite favorable to the monument and he intends submitting an article to a Canadian geographic magazine. Mr. Bird has travelled extensively in 38 countries and was kind enough to give an interesting talk to the enrollees at the CCC camp. One can best judge the reception of the talk when overhearing such comments as "I could listen to him all night".

CCC GUIDES

William Stone was away on leave part of the month, January 7 to January 17, due to illness of his grandfather. During his absence, James Minton helped out. Enrollee Savoy was added to the force for clean-up work around the buildings on January 20.

*****SWM*****

We had a very pleasant visit one day this month when Frank and Corabeth came in to headquarters with Ed. and Mrs. Riggs. Ed is planning to test the traffic this summer to see if a saddle stock permit will pay its way. We will naturally do all we can to make it a success because so many visitors come unprepared for walking or are

CHIRICAHUA (CONT.)

unable to walk and thus miss some of the finest formations. Chiricahua is an ideal horseback monument and the visitor can enjoy from an hour or two to a full day in the saddle. We also have some places for the he-man type of ultra-conservative who decries roads, trails, or anything else that looks like comfort in a national park or monument. We have some scrambled places without trails where he can tear his pants to his heart's content, -- only he never goes into them. Incidentally, we have a bit of quiet fun at Bandelier with the he-man type who weeps great gobs of tears because we have brought a road into the canyon and established a headquarters and, "gone are the days", etc. We cheerfully point out a sort of a trail winding up the south side of the canyon and tell him to take a day or two off and go on up there and over into the next canyon and the next one and he will find solitude he can cut with a knife, -- but he practically never goes. He wants his solitude with his feet under Mrs. Frey's well-filled table three times a day when you get right down to the case-cards, and actually going out into open country and risking his neck is about the last thing you can get him to do.--F. P.

*****SWM*****

CHIRICAHUA CCC

By William Stevenson, project
superintendent, Douglas,
Arizona.

DECEMBER REPORT

Highway maintenance has been a major project this month due to snow on December 13 and 20. These snows held up work on the back-sloping and trail maintenance projects for one week. Numerous small slides were removed, ditches and culvert basins cleared, and one half mile surfaced. Snow removal required 200 man days.

One hundred square yards of banks were sloped one half mile north of the intersection of Bonita Highway and Sugar Loaf Truck Trail. Materials were used in widening fill slopes. Two hundred square yards of banks were sloped one half mile south of Bonita Park and materials were used for surfacing from the Sugar Loaf Truck Trail intersection south.

One half mile of upper Rhyolite Trail was maintained. Banks were sloped, trail re-surfaced, and additional drainage provided.

Rock work was completed on Employee's Residence and the roof is in place. Framing for partitions has been completed.

JANUARY REPORT

Two crews continued on the backsloping project this month. Six hundred fifty square yards of banks were sloped two miles north of the intersection of Bonita Highway and Sugar Loaf Truck Trail and 700

CHIRICAHUA CCC (CONT.)

square yards were sloped one mile south of Bonita Park. Materials were used for surfacing and widening fill slopes.

Highway maintenance was light until the latter part of the month when snows caused numerous slides which necessitated clearing ditches and culvert basins. One fourth mile of Bonita Highway and one half mile of Sugar Loaf Truck Trail was surfaced.

One and three-fourths miles of horse trails were maintained including that section of Rhyolite Trail between Hunt Canyon and the intersection with Echo-Massai Point Trail and the section from Rhyolite to Massai Canyon. Banks were sloped and entire length surfaced. Additional drainage was provided.

All plastering was completed on the Employee's Residence. Plumbing fixtures were installed in the bathroom. Floors and cabinets are now being fabricated in the carpenter shop. Painting is being held up on this building pending receipt of color selections.

The water line extension from the headquarters main to the employee's residence was completed.

The Utility Area Extension Project was opened this month. The area was cleared and excavation started.

*****SWM*****

We have two reports from Bill this month. Due to some oversight, the December report got lost in the shuffle and we are setting the record straight by putting it in here a month late. Otherwise, the historian, fifty years from now, in searching these records might think Bill and the Chiricahua Camp sat around and loafed during December.--F. P.

*****SWM*****

CAPULIN MOUNTAIN

By Homer J. Farr, custodian,
Capulin, New Mexico.

Visitors this month, 250; total since October 1, 2,250.

Well, I really am ashamed to make this report for January, for our visitors have been just about like hens' teeth. I believe that 250 would constitute the run and most of them are local; just a few from Oklahoma, Kansas, Texas, and Colorado.

The past few months I have noticed quite a number from Colorado and my curiosity was aroused so I asked a few of these what prompted them to visit this monument when their state boasts of the grandest mountains in the world. We do know they have the "heart of the Rockies", but my question has been answered by several who stated, "One

CAPULIN MOUNTAIN (CONT.)

can get a perfect view of the entire landscape", as one fellow told me, "from all seven directions" from the drive up Capulin Mountain.

WEATHER

Weather has been rather cold but not unusual for January, with no moisture worth mention, so far, and only one or two windy days, although just east of us here within 100 miles, we have heard of severe dust storms.

ROADS AND TRAILS

Roads and trails are in good condition with only the usual sloughing off lava and cinders and, of course, a few rocks.

PORCUPINE CONTROL

Recently I note quite a number of small pines damaged by Mr. Porky in spite of the fact that there are several fewer of him than last summer. I hope before winter is over to get them reduced to a fair balance. I am very proud of our deer and they appear to be not so wild lately. I believe we now have about 12 or 15 in the park. One extra large buck visits this monument about monthly, tho' I presume he thinks he is visiting some fair doe, I seldom actually see him but I see his footprints often.

TIME

We have just recently finished a fair calendar year and half of our fiscal and well started on a new one. Personally, I feel more like doing things than I have for many moons and my hopes and best wishes go to you all that you may feel as well as I do.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 798; total since Oct. 1, 2,954.

GENERAL

The new year came in with a bang here at Aztec Ruins. We have scored an all-time high record in travel, weather, and roads. Wolf Creek Pass in Colorado has remained open and in excellent shape the entire month. State road 55 has remained open with only a few days that the road was slippery. We have been enjoying excellent weather throughout northwestern New Mexico, with a little rain, a light snow that melted as it fell, and many bright sunny days. No official trips were made away from the monument during the month. The entire month was devoted to visitor contacts, with very little time to do the

AZTEC RUINS (CONT.)

necessary chores. January at this monument is normally quiet. It is believed that the increase in travel here is due to improved roads and an open winter.

WEATHER STATISTICS

Maximum temperature - - - - - -53° (January 16 and 17.)
Minimum temperature - - - - - - 9 above (January 10.)
Total precipitation - - - - - -.70" Greatest amount recorded
in 24 hours, .35 on January 3.
Clear days- - - - - -17
Cloudy days - - - - - -11
Partly cloudy days- - - - - - 3

For the corresponding period of last year: Maximum temperature 44° January 6. Minimum temperature minus 22 on January 22. On 13 nights it was well below zero.

SPECIAL VISITORS

Captain Charles Carey, director, Smithsonian Institution, Washington, D. C., and party were interested visitors on December 29.

Gordon Vivian, archeological foreman, Mobile Unit, Chaco Canyon National Monument, was here and photographed the ceilings of 12 rooms, original roofs in the ruins. These pictures are badly needed for additional supporting data in making a ruins stabilization report on waterproofing rooms, requested by the Regional Director's Office.

Mr. and Mrs. Ray Ismay, from Jucca House National Monument, arrived January 6 and departed on the 7th. Gordon Vivian and Custodian McKinney were here on January 19. Mr. Fred G. Healy, state administrator of WPA and W. C. Kruger, landscape architect, both of Santa Fe, and District Supervisor E. A. Rose and Project Engineer L. W. Hitchcock paid us a visit January 18.

UNUSUAL VISITORS

A passenger plane flew over the ruins two or three times on January 5. On the 6th, the party returned by car from Durango. This party spent a lot of time in the ruins and in the museum and were really interested. Before the party left the monument, I asked them the following question: "How did the ruins look from the air?" The reply was that it looked like a beehive. Anyway, it must have looked good enough to make them want to return. I would appreciate it, Boss, if you would not broadcast this beehive business because I happen to know a few custodians that would try to change the name of this monument.

MONUMENT IMPROVEMENTS PROPOSED

The Mountain States Telephone and Telegraph Company have agreed to

AZTEC RUINS (CONT.)

remove the telephone poles and wire from the monument and replace them with underground lead cable, without cost to the Service, if the Service will dig the trench and bury the line. The distance is 980 feet. This would save the Park Service about \$1,000. This monument is out of funds, Boss, I suggest we try Chuck Richey; you know how Chuck dislikes telephone poles.

INTER-MONUMENT TRANSFERS

Dump truck USDI No. 8121 NPS was transferred from Chaco Canyon to Aztec Ruins December 28.

TRAVEL

Seven hundred ninety eight people entered the monument in 233 automobiles coming from the following states:

Arizona-----	7	Kansas-----	13	Ohio-----	4
California--	51	Michigan--	4	Oklahoma----	36
Colorado----	207	Missouri--	13	Texas-----	17
Indiana-----	4	Montana---	1	Utah-----	8
Illinois----	3	Nebraska--	5	Washington---	3
Iowa-----	4	New Mex.--	410	Wisconsin----	2
		District of Columbia-----	3.		

GUIDE SERVICE

Number of field trips:-----112 with 637 persons.
Number of museum trips:-----121 with 686 persons.
Number of special groups:--- 6 with 47 persons.
Total contacts:-----1,370 persons.
Total guide time in field:--3,669 minutes.
Total guide time in museum:--2,708 minutes.
Total guide time:-----6,377 minutes
Total visitor time at monument: 9,039 minutes.

*****SWM*****

We wonder now how many of Carroll's visitors are due to the open winter and how many of them are due to the new Wolf Creek road which the State of Colorado has promised to keep open during the winter from now on. The nearly 25% shown in the table as coming from Colorado would indicate that the Wolf Creek Pass must have furnished its quota, and that in turn looks like the visitor line on the Aztec chart is going to get a permanent winter bulge in it.--F. P.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian,
Moccasin, Arizona.

Visitors this month, 151; total since Oct. 1, 560.

As I sit here at the desk trying to think of just what I should put into this monthly report, I can't help but think back over last year at this time. The difference in the weather then and now!

A year ago we were snow bound, getting the snow plows from Utah to come in and open up our roads for us, receiving mail only a few times the entire month, and the thermometer down to 20 below most every night. This year is entirely different. Today there is about one and one half inches of snow which is going fast; roads and southern slopes are clear of snow but there is some mud. The temperature has been getting down around ten above so far this winter. Flies and gnats, as well as several other varieties of insects that I do not know, were sunning themselves in the window this afternoon. Grass is coming up and some is six inches to a foot tall along the irrigation ditches. The meadow, before the last snow, was full of dandelion flowers; the heads so thick you could hardly see the grass. The only regret that I have for such a winter is that we usually get our early fruit frozen by a late frost in the spring.

The weather report for the month is as follows:

Days clear--	- - - - -	- 11
Days partly cloudy--	- - - - -	- 10
Days cloudy--	- - - - -	- 10

We had a storm on December 23, blustery and rain. On December 24 one and one half inches of snow fell, but it stayed only a day. January 2 and 3 we had a good steady rain. More rain came on January 15 and 16 with an inch of snow on the 19th which soon melted. Snow fell again on December 20. We got about six inches that is about gone today.

VISITORS

This month I have had an increase in giving service to visitors, the most of them coming the last four days. These are CCC enrollees.

The total contacts given this month on road information and the monument is 87; time spent 819 minutes, as compared with 30 for last month and none for a year ago.

Unguided visitors that used the monument facilities, I have counted 64 as against 114 for December.

CCC ACTIVITIES

On January 4, some 40 boys returned home as their enrollment period was up, and on January 19, 65 new boys came in to fill up the camp. The

PIPE SPRING (CONT.)

new boys are mostly from the state of Indiana and they seem to be well behaved boys, at least many of them have spent part of their time here in the fort learning about the history of the place.

CCC

I have not had any help from the CCC this past month as I thought that I could do all the work that there was to be done as long as it was not part of the CCC monument projects. Last month, 125 feet of $1\frac{1}{4}$ -inch pipe was purchased and the lumber for the garage was charged to the \$50.00 allotment for our projects. Nothing has been done this month that I know of.

I have been asked several times if and when we were getting in the truck the Park Service has promised for use up here. It seems that the CCC wants it for their own use as well as for the monument. As yet, I have received no word concerning it.

Acting Superintendent Paul Higden told me he had a letter stating the Park Service had a Chevrolet truck in Salt Lake City and to come and get it. But I don't know.

BIRD NOTES

The past month my bird records show the following catches and repeats:

	<u>New</u>		<u>Repeats</u>		<u>Totals</u>	
	Jan.	Previous	Jan.	Previous	New	Repeats
Gambel Sparrow	78	134	44	157	122	201
Song Sparrow	4	8	1	29	12	30
Spurred Towhee	2	1			3	
Greenbacked Goldfinch	2				2	
House finch	1	1			2	
Shrike	1				1	

There are two more Gambel Sparrows to add to my return records. These are birds that I banded in April, 1936; making five that I banded in the same month that have returned to the monument.

PLANTING

This month I have set out 20 cottonwood trees across the road from the camp entrance road and east to the monument entrance. And as soon as one can get out and work, I want to set out 20 or 30 more in the camp area and around the parking area. There will be planting to make around the residential area as soon as I know just where to plant. I hope we can get the trees in this spring.

CLEANUP

The forepart of the month most every day that I could be out was

PIPE SPRING (CONT.)

spent in cleaning up the weeds and leaves from around the fort, ponds, campground, and east side of the meadow, also cutting out the suckers from around the elm trees west of the fort and on the east side of the meadow. There are several more days work by the meadow before it is all cleaned up.

FORT

The plaster in the upstairs of the lower building has cracked up a lot this winter and in one place a piece of plaster has fallen out and it looks as if there will be some more fall before long. There is also a place in the upper building where the plaster is off. I will get at it and fix up these two places when warmer weather comes.

WEST CABIN

For the past six months, the Division of Grazing has had the use of the west cabin for the Range Survey crew to use as their office and map room, under the supervision of Mr. Bill Wright. They were good house-keepers and left the place in excellent condition when they moved out January 15.

My big concern now is, will I be able to keep the boys out of it and from holding parties up there? There appears to have been some kind of parties held already.

CLOSING

I bring my January report to a close hoping that I will be able to make February show as much improvement and accomplish as much as I have in January.

*****SWM*****

In order to clear the record, we might tell Leonard here that his truck is not lost, but we think is on its way. We are expecting one out of Texas now and as soon as we get delivery on it will let him know.--F. P.

*****SWM*****

TONTO

By Tom Onstott, ranger in charge,
Roosevelt, Arizona.

Visitors this month, 679; total since October 1, 1,539.

This brings to a close a very pleasant month as far as both weather and visitor contacts are concerned. After getting the new SWM 16 all straightened out last month, there has been no more trouble. So far, it has not broken down even on busy days.

During late December and the first few days of January, there was a great deal of local travel which might come under the heading of "holiday rush" parties. These helped to shorten the average party time down quite a bit. In spite of this, the museum contacts are getting longer and with a little revising and possible addition, the time will increase still more. The only big drawback to long museum contacts here is that the majority of our visitors are very nervous about driving the Apache Trail and, after they have gone through the ruins, they are usually in a hurry to get on the road so that they will be sure of getting back on pavement before dark.

One party of campers stopped this month. Seven students and an instructor from the Palo Verde Ranch School arrived on the evening of January 8 and stayed overnight.

Just before dark on the evening of the 6th, Mr. and Mrs. J. W. Rodkey, personal friends of Mr. Cammerer, stopped in for just a few minutes.

Mrs. Vickrey, the archaeologist in charge of the dig at Pesh Ba Gowa in Globe, brought out a party of friends on the 17th and spent quite some time looking over the ruins and museum.

Natt Dodge fooled me. He really came to take the pictures of the upper ruin. The Dodge family arrived early enough to go through both ruins, but it was too dark for Natt to take pictures. He took his shots the next morning (Sunday, the 23rd), and I am wondering if he was as stiff Monday morning as I was. It is some hike up to the top of the mountain opposite the upper ruin.

Four of the much needed twelve gutters were put in this month and some widening done on the trail to the lower ruin. Six wheelbarrow loads of clay were put in front of the museum to cover the sharp rocks which nothing short of black powder could move.

Early in the month, the cattle again got up the pipe line with the same result. This time a dry masonry ramp was put under the line and no more trouble has been encountered.

<u>VISITOR STATISTICS</u>	<u>1938</u>	<u>1937</u>	<u>1936</u>
Total visitors	679	432	757
Total registered	581		
States	32		
Foreign countries	3. Canada, England, and Mexico.		
Field trips	129	76	93
Attendance	429	334	536
Time	5195 (total of SWM 16)	Av. att.	3.3
	4875 (actual time)	Av. time	40.27

TONTO (CONT.)

Museum trips	85	Per cent contact	111
Attendance	328	Average party per car	3.14
Time	1327	Unattended parties	135
Av. att.	3.8	Unattended people	421
Av. time	15.6	Time	3575
		Av. size party	3
Special parties	1	Av. time	24.2
Time	150	Total time on monument	11202
Attendance	4	Total parties to monument	176

Weather: Maximum, 70; Minimum, 33; only one solid freeze.

Question of the month: A lady visitor standing on the parking lot and looking up at the lower ruin asked, "Oh, guide, can one stand up under that overhang?" That just happens to be a new one on me, Boss.

*****SWM*****

We might tell Tommy that Natt came home deeply in love with Tonto. If and when he gets fired from his present position, he has his application in for that Tonto job.

Tommy's reply to "the question of the month", was, we think, an A#1 answer, although Tommy was too modest to include it in the report. He told the lady, very politely, that the only people who ever had any trouble in standing upright under the overhang were those over 35 feet tall.--F. P.

*****SWM*****

NAVAJO

By Milton Wetherill,
Kayenta, Arizona.

Visitors this month, 4; total since October 1, 78.

So far, we have had very little winter. January has been more like spring. One storm January 15-16 was rain with snow. Rain started again the night of the 18th with snow following and at six o'clock the next morning, five inches of wet snow was on the ground. The Water Birches along the bottom were bent double with the weight of the snow.

I have been working the trail from the camp ground to the ruins. Where there are bad places, I am building retaining walls and grading up the trail. At one place, I put in a rock culvert to carry the water across the trail in place of letting it run down the trail.

The trail down from the end of the road is in very bad shape, as the Indians the last part of December and the forepart of January were putting between 200 and 300 head of sheep over it every day. They would take them out on top in the morning to graze returning to the forks of the Canyon at night. No water on the Mesa.

NAVAJO (CONT.)

Dr. S. P. Welles, Museum of Paleontology, University of California, Berkeley, California, was in to look at a new dinosaur.

Several Indians were in to collect plants for medicine to be used in sings (ceremonials). Plants collected were: Douglas Fir, horses-tail, rose, service berry, alum root, wild geranium, and three types of yucca.

BIRD NOTES FROM BE-TA-TA-KIN

Birds observed: Woodhouse Jay, Long-crested Jay, Canyon Wren, Sharp-shinned Hawk, Western Robin, Mountain Chickadee, Rocky Mountain Nuthatch, Gray Titmouse, Shufeldt Junco, Montana Junco, Pink-sided Junco, Gray-headed Junco, Red-backed Junco, Raven.

The Sharp-shinned Hawk made a try for dinner but failed when I stepped out to see what was wrong. He had a Long-crested Jay down trying for a kill. This took place 15 feet from the tent, at noon.

There is a pair of Canyon Wrens that stay at the Ruins. Their cheerful song can be heard at daylight every morning.

One Montana Junco banded, with 29 repeats on juncos.

*****SWM*****

BANDELIER

By C. G. Harkins, custodian,
Santa Fe, New Mexico.

Visitors this month, 298; total since October 1, 2,476.

TRAVEL

Travel has been very slow this past month but has shown a slight increase the last two weeks. There were 292 people who visited the monument in 80 cars from 19 states and 5 foreign countries. Our visitors made 34 trips through the ruins with an average of 3.7 people to the the party and 61.9 minutes per group. Twenty-four parties were shown through the museum and averaged 3.6 persons to the group.

TRAVEL STATISTICS

Total travel- - - - -	298	Total guide time, museum- -	385
Total contacts- - - - -	61	Total guide time, special -	280
Guided trips- - - - -	34	Total visitor time- - - -	14780
Museum trips- - - - -	24	Av. time field trip - - -	-61.9
Special groups- - - - -	3	Av. time museum contact -	-16.
Total guide time in field - - -	-2105	Total guide minutes - - -	-2490

BANDELIER (CONT.)

WEATHER

The weather has been ideal the past month with no snow and very pleasant days. The roads are in good condition, but they are a little sloppy in the afternoons. Some snow still remains in the shaded places and will perhaps hang on for a few months yet.

The State Highway Bridge Department has finished the rebuilding of the four bridges on our entrance road. This work was completed on January 14, along with the completion of all guard rails. This is a very fine piece of work and will last for several years, as new stringers, decking, and guard rails were installed on all of the bridges.

The Forest Service has opened the road over the Jemez Mountains and several parties have made the trip over the Valle Grande, for skiing and other winter sports.

Word has been received from the Department of Agriculture, Weather Bureau, in Albuquerque that equipment is being shipped to this station to convert it into a regular cooperative Observer's Station.

GENERAL

Work on Tyuonyi, the great community house, was completed on the 21st and is a mighty fine piece of work and a much needed improvement. Considerable stabilization was done to the excavated kiva inside the court at Tyuonyi. This leaves both of our excavated kivas in good condition and they should need no further stabilization for several years.

FIRES

Around 10:00 A. M. on January 17, a fire started on the floor of the garage while the CCC enrollees were cleaning out the gasoline tank on one of the trucks.

The fire soon spread to the work bench and wall cabinets, destroying the entire contents of the garage and one truck. We were severely handicapped by lack of water pressure; however, we were successful in confining the fire to the garage building and preventing its spread to other structures. The roof on the blacksmith shop, which adjoins the garage, was saved, but all hand tools and contents were a total loss.

BIRD BANDING

Materials and instructions for a bird-banding station were received January 1. Twenty-eight birds were banded during the month, using one two-compartment trap, as follows: 19 Grey-headed Juncos; two Pink-sided Juncos, three Shufeldt Juncos, two Say Phoebe, and two Red-backed Juncos.

BANDELIER (CONT.)

WEATHER CHART

Days cloudy- - - - -	16	Mean Minimum- - - - -	-19.29
Days partly cloudy - - - - -	2	Mean- - - - -	-28.69
Days clear - - - - -	13	Range - - - - -	-18.51
Max. Temperature - - - - -	46,16th.	Precipitation - - - - -	.35
Min. Temperature - - - - -	4,25th.	Snow- - - - -	-2 in.
Mean Maximum - - - - -	38.09		

NEWSWORTHY VISITORS

January 9. Mrs. E. J. Dykersterhus, U. S. Forest Service, and party of three, Taos, New Mexico.

January 12. Mr. and Mrs. G. M. Gross, Wichita, Kansas.

January 15. Mr. and Mrs. Charles C. Shepard, Omaha, Nebraska.

January 18. V. Floor, Wald Zurich, Switzerland, and Mr. and Mrs. Fred Herding, Hollywood, California.

PARK SERVICE VISITORS

December 30. Eric K. Reed, assistant archeologist, Santa Fe.

January 17. Ward W. Yeager and H. L. Bill, assistant foresters, Santa Fe.

January 18. Leo A. McClatchy, Cecil Doty, and Charles E. Richey, all from Santa Fe.

January 19. John E. Kell, CCC inspector, and Clifford E. London, junior equipment engineer, from Santa Fe.

FOREIGN COUNTRIES REPRESENTED

Canada, three; Tibet, one; Switzerland, one; Ireland, one; and France, 1.

NATURE NOTES

The past summer a pair of Abert Squirrels raised a family in the vicinity of the upper falls on Frijoles Creek, and hikers using the trail to the Rio Grande river often remarked that they had seen them and commented on their unusual beauty. The Abert is perhaps the most beautiful squirrel of New Mexico, if not of the entire country. It is a dweller of the yellow pine forests over much of the state. The Abert is locally referred to as the tassel-eared squirrel and is represented throughout the state by the light grey and the black or dusky color; the light grey color being predominant here in Bandelier National Monument.

These squirrels lend an air of distinction and interest to the monument and were often noted in the camp-ground the past summer. Being expert tree climbers and highly skilled in leaping among the tree tops, they caused no little comment and attracted a great deal of attention

from the campers. They are about the size of the eastern grey squirrel but of a more robust form. Their ear tufts stand up conspicuously and the long, plume-like, black and white tail which is always in evidence, appears to the pride of the squirrels. A wide cinnamon stripe extending along the back tends to ornament these beautiful creatures.

The typical color phases of the Abert Squirrel occurs throughout the New Mexico range but prevails almost wholly in the northern section of the state. In Bandelier, the underparts are white, but the upper-parts of the body are light grey and the cinnamon back stripe is much less defined than on the animals farther south. These squirrels feed extensively on pine twigs, clipping the tips from the limbs and letting them fall to the ground. They then make a second clipping so as to get two or three inches of the twig from which they gnaw the outer bark and eat the tender inner bark. In fall, winter, and spring, this inner bark constitutes a considerable part of their food and even when acorns or pinyon nuts, both favorite foods, are available, they often resort quite freely to the pine bark diet. This pine topping habit often becomes so common that ranchmen complain because of the supposed injury to the trees, and the serious effect to the unborn calves where cows feed on the fallen needles. These squirrels are fond of the nuts of the pine which they begin to cut from the cones long before they are ripe. Their range in elevation is between 6,500 and 8,500 feet and they seldom leave the yellow pine forests although they occasionally venture above the range of the yellow pine to the spruce and fir. However, they do not make a permanent abode in such places.

Altho these squirrels make use of large knotholes in trees, they regularly build, high up in the branches, bulky nests of leaves, pine needles, and twigs, and line them with soft grass and shredded bark. Sometimes several full-grown squirrels, all probably members of one family, may be found occupying these outside nests. They are active throughout the year but remain in their nests during storms and severe winter weather, and they have been known to stay under cover for a week or two at a time in mid winter.

The young apparently are born at varying times between April and September. Although not definitely known, it seems probably that there are two litters of three to four each season.

On one occasion the past summer at the upper crossing on Frijoles Creek, I sat on a boulder about half way down the side of the canyon debating whether to go on down or return, when directly below me I noted the hollow-topped stub of a Douglas Fir, the top being a little below me and about thirty feet away. The heads of four half-grown squirrels of the Abert family were protruding from the opening, their bright eyes turning to all sides. Suddenly, a hawk glided by, one of its wing tips almost brushing the noses of the squirrels. Instantly, they vanished from sight and noises of scratching and frightened chattering continued for several minutes as though they were burying themselves

BANDELIER (CONT.)

under the nest. About 20 minutes later the boldest showed his nose at the opening, but it required another ten minutes before he came out on the stub. Confident that no further danger threatened, he began frisking about as playful as a kitten, but the others remained under cover.

*****SWM*****

One of the worst pieces of news we had during the month was the fire at Bandelier. Our money comes so hard and we have so many places to use it that we hate to have to put any of it into rebuilding structures or rebuying tools and equipment; yet we cannot run that camp up at Bandelier without tools and shop equipment.

We realize that the boys did a mighty good piece of work in confining the fire to the building in which it originated and think they are to be complimented on the speed with which they got on the job and the satisfactory way they handled it when they arrived.

It is good to have that badly needed work on Tyuonyi done. That ruin has been suffering these many years for lack of stabilization work.

Again we are glad to note the general activities at Bandelier; the weather station going in, the bird banding, and the nature notes.--F. P.

*****SWM*****

BANDELIER FORESTRY

By James T. Fulton, forestry
foreman, Santa Fe, N. Mex.

FIRES

On January 17, 1938, a fire did \$800 worth of damage to our utility area garage, completely burned one truck, and destroyed \$2,800 worth of tools. Detailed report is on file.

FIRE PRE-SUPPRESSION

On January 20, we of the Supervisory Personnel checked all fire hydrants to see that they were in good working order. The reason for this inspection was that on the day previous the hydrants in the Hotel Development were connected to the water lines. It was found that all hydrants had good pressure, enabling a two-inch line to throw a 60-foot stream of water.

MISCELLANEOUS

For the past month I have been working on Job 51, Lobby and Sales Room of the Hotel Development. The walls are finished to an approximate height of six feet.

*****SWM*****

BANDELIER CCC

By James M. Eden, acting project
superintendent, Santa Fe, New
Mexico.

During the month a small crew of men have been making pipe connections to the 20,000 gallon concrete reservoir and connecting all fire hydrants within the Hotel Development area.

Wall construction on the east side of Unit No. 2, of the Hotel Development, has been completed to lintel height during the month, and the remainder of the wall is to sill height. All door frames and five window frames have been set in this building.

The two rooms of the Employee's Dormitory (Hotel Development), which were started the latter part of December, have been completed to viga height during the month. Lintels have been placed in the other five rooms of this unit.

During the entire month the Ruins Stabilization crew have been working on the community house. Stabilization of this community house was completed on January 31 stabilizing, in all, 242 rooms.

The eight pieces of furniture which were reported complete last month have been turned over to the Custodian for permanent monument use; also two additional pieces of furniture have been completed this month and turned over to the Custodian. Part of the carpenter crew have been busy all month hewing lintels for the Employee's Dormitory.

During the entire month a crew has been at work in the rock quarry, quarrying and shaping building stones for use in the Hotel Development area.

*****SWM*****

BANDELIER RUINS STABILIZATION

By J. W. Hendron, foreman, Box 669, Santa Fe, New Mexico.

At the writing of this report the stabilization of Tyuonyi, the big community apartment house, has been completed. The job consisted of the stabilization of 242 rooms which were excavated by the School of American Archaeology in 1908, 1910, 1911, and 1912; and the cleaning of the small excavated kiva, and its partial reconstruction. The stabilization of the rooms, but not that of the kiva, was discussed in last month's report.

At the time of excavation by the School, one of three small kivas was excavated, and at the time of the stabilization the wall was not noticeably different. The mortar had washed from between the building stones to some extent and the fill around the outside of the wall had formed in such a manner that a great deal of rain was caught by the

BANDELIER RUINS STABILIZATION (CONT.)

structure. This fill was cut down to such a level that three feet of additional wall might be built all around onto the original wall. As the wall was being constructed, it was back-filled around the outside and a certain amount of flare was given to the wall to keep it from falling to the inside. The fill was then formed into a slope so that drainage would not be to the inside.

While preparing to stabilize the ventilator shaft, it fell in, but perhaps this was fortunate, since it has now been reconstructed and the building stone set in cement to insure its standing for some time to come.

Two other small jobs were completed including the cleaning and stabilization of two pitted rooms of a rectangular structure a few feet east of Tyuonyi, and the replastering and smoking of the Sun Kiva, the largest cave cut out of the tuff cliffs in the canyon.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 14; total since October 1, 212.

A month of unbelievable weather but only 14 visitors! A light snow; although wet, fell on the eve of the 20th. Ten above zero has been the coldest to date, while a year ago tonight it was 25 below. This month last year the pipes were frozen 17 days of the 31. Quite a contrast, but that is just another one of the marvels of de Chelly; one needs never worry about being bored even with the weather. Everything here is just fine, Boss; not a great rush of visitors but lots of fun with all my Navajo pals and, Boss, it would take a vocabulary like that of Graham MacNamee at the Rose Bowl in Pasadena to describe some of the sights I have been privileged to see on various inspection trips. The lights, shadows, etc. Honestly, I am considering lending my support to the anti-lynching bill now before Congress by inviting the Southern Bloc to visit de Chelly, and any filibuster can then be carried on indefinitely on the wonders of Canyon de Chelly National Monument.

It has been most interesting at odd times to run down some of the early history of the Navajo, incidents in the life of Kit Carson and other references on de Chelly. Budlong very kindly furnished me several references that I have found worth while. Speaking of Budlong, I want to congratulate him on the frontpiece and article (pg. 33, January, 1938, issue) in the "Masterkey" on El Morro and that famous waterhole. Bud may claim the water is terrible, but he will have to admit that the ole hole, vermin and all, have heaped a lot of good publicity at his doorstep. So I guess it is an ill wind that blows no one some good.

CANYON DE CHELLY (CONT.)

You, of course, Boss, have been up both Canyons many times, but I wish you might accompany me when it is without any life. To go up this time of year is almost wierd. One can hardly realize how much the Navajos add to the setting until he sees it without them. In this connection, I have several ideas that I am submitting in a separate letter at a later date.

The CCC camp has lessened operations of recent date and there is not a great deal going on in this neck of the woods. I still battle with Cozy verbally on any subject that either of us choose to defend, but the Navajo has no regard for our discussions and takes my opponent off to place a value on a rug or pelt, and so it goes, but we will make every attempt to keep the wheels turning and in the spring open up with a bang. Am yet getting letters from last-summer visitors telling us of the pleasures our unit afforded them. That's what comes of those requirements we place on our rangers, I am thinking of adding even more for the coming season. Any suggestions, anybody?

*****SWM*****

CASA GRANDE

By A. T. Bicknell, custodian,
Coolidge, Arizona.

Visitors this month, 4,766; total since October 1, 12,843.

WEATHER

Days clear-	- - - - -	-21
Days partly cloudy-	- - - - -	6
Days cloudy	- - - - -	4
Maximum temperature	- - - - -	-78° on the 13th.
Minimum temperature	- - - - -	-24° on the 12th.
Mean maximum temperature-	- - - - -	-70.0
Mean minimum temperature-	- - - - -	-35.5
Precipitation	- - - - -	-0.35 inches.

The winter visitors ought to be getting a mighty fine impression of Arizona this year. During the past month the days have been warm with very little wind, temperatures average about five degrees above normal. Usually, January is one of the rainy periods, but this year the rainfall is about .71 inches below normal. Prevailing winds for the month have been from the southwest.

GENERAL

Total travel for the month reached a new high with 4,766 visitors of which we contacted 4,500. The visitors represented 46 states, Washington, D. C.; Hawaii; and five foreign countries, namely: Canada, England, France, Germany, and Norway. Approximately 75% of the visitors registered from the following states: Arizona, 47%; California, 12%;

CASA GRANDE (CONT.)

Gas, 4%; and Oklahoma, 4%.

Illini:

On the evening of January 5 we were honored by a visit from the Federal Reclamation Repayment Commission. Among those in the party were Everett K. Gould, Denver, Colo.; W. R. Wallace, Salt Lake City, Utah; George T. Cochran, La Grande, Ore.; Charles A. Lory, Ft. Collins, Colo.; G. W. Linweaver, G. O. Stanford, and Misses Katharine Tully and Gladys Whitney, of Washington, D. C. The Boss, Dale, and Davey conducted the party through the ruins and museum. Even to us old hands the ruin was quite spectacular lighted with red flares. We are almost considering conducting parties through the ruins only at night by the light of the flares. It would make our "mud house" much more impressive for visitors.

The National Park Service had an opportunity to help the National Geographic Society this month by contacting various individuals who could aid Artist W. Langdon Kihn in obtaining portraits of the various Indian tribes of southern Arizona. Ranger Jones was detailed to spend several days in the Yaqui village (Pascua) near Tucson with Mr. Kihn in order to give him an insight into the village, and help him arrange for portraits with individuals. This will be one of the very few studies of this type which has ever been made on the Yaquis. All of us are looking forward to seeing the series of paintings on Southwestern Indians in the National Geographic Magazine.

Dr. Emil Haury and Harry Getty of the University of Arizona visited the monument with a group of archeology students in order to see what a prehistoric watchtower looks like. While the Casa Grande is not the only watchtower in this region, it is the only one preserved in something of its former glory.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Total travel; 1938-----4766; 1937-----3744; 1936-----3370.

Of the 4,766 visitors to the monument, 4,500 were guided through the ruins, the museum, or both. It required 14,287 minutes to guide 400 parties through the ruins for an average time of 35.7 minutes. In the museum 7,739 minutes were spent guiding 333 parties for an average time of 23.2 minutes.

VISITORS

Among the visitors to the monument for the month were Odd S. Halseth, archeologist at Pueblo Grande; Miss Frances Gilmor, author of "Traders to the Navajos"; John East, of Chicago, who has made some very interesting studies of the birds on the monument; Sherman Bushnell of the Bureau of Public Roads who was a friend of the Soules and Bicknells at Yellowstone.

CASA GRANDE (CONT.)

National Park Service visitors to the monument included Ranger Felton and wife of White Sands, William Macy of the Museum Division, and Jesse Jennings and Jane of Montezuma Castle. Jesse was mighty proud of the finish on his boots. Not to be outdone by one of the field men we inquired as to the procedure. He mentioned that it required about a half hour each evening, but for the details he had to ask Jane. We suspect that if it were not for Jane, Jesse's boots would look like curs.

CASA GRANDE CCC

One hundred and nine man days were used this month on Job #50, Shop Construction. Excavation for the foundation was started December 28, 1937, but little work was done until the second week in January when the footing and the foundation was poured. The concrete was given a seal coat to prevent capillary attraction, and about four feet of adobe wall has been built to date.

Guide and educational work, Job 53, required a total of 102 man days. Johnny Cocks, guide, left us on the 5th and was replaced by Buster Baldwin. Teddy Savage, a new man in camp, has also been added to the guide service, and is working in nicely.

A reconditioned motor was installed in CCC truck #13781; one day was spent hauling sand for foundation of the shop building.

On Job 54, Clean-up, we used 31 man days cleaning up old lumber and trash in the vicinity of Compound B.

Job 55, Adobe Manufacture, was continued, 128 man days being spent on this project. The boys are turning out a mighty fine bunch of adobes.

Due to Army regulations and unfinished work at camp, it has been necessary to use 40 man-days picking up at odd jobs.

Chaplain Probert held services at camp on December 26, January 2, and 16. A. J. Beatty, educational adviser, NM-2-A, visited the camp in connection with his work on December 31, January 3 and 17. Camp was inspected by Dr. Barker, district surgeon on January 2; by Lt. Keilling, Commanding Officer at BR-19-A, on the 12th, and Captain Halfp on January 14.

Safety meetings were conducted on Thursdays of each week, and the following classes were held:

	<u>Instructor</u>	<u>Dates</u>
Arithmetic- - - - -	-Mr. Hobbs-	-Jan. 18 and 24.
Spanish - - - - -	-Mr. Hobbs-	-Jan. 12 and 19.
Building trades - - - -	-Mr. Hobbs-	-Dec. 27; Jan. 3, 10, and 17.

The educational division program was put into effect January 17.

Junior Naturalist Dodge gave a lecture illustrated with lantern slides on the evening of January 21. The boys are also indebted to Natt for the loan of a radio for use in camp.

By the time our next report is due, we hope to have in operation a self guiding trail routed by way of one of our ruins which the visitor seldom sees, because we do not have time to take him to it.

In a mimeographed pamphlet issued to each visitor expressing a desire to see the trail, there will be a short discussion on the pre-historic ruins he will see, and bits of information on the plant and animal life of the desert. In this manner, we hope to give the visitor who has time a more complete picture of the lives of the Hohokam, and of the adjustments they had to make to their surroundings. We are not investing any money in this project until we see whether or not we have what the visitor wants. By asking that the pamphlet be returned to the office, and watching for the return of the visitor from the trail we hope to determine whether or not we are presenting our information in the proper manner. If this project is a failure, we shall at least know what we cannot do with our visitors. On the other hand, if we succeed, we shall have somewhat of a solution to the problem of the visitor who expresses a greater interest than the average.

*****SWM*****

There was a rather amusing scramble around the lot the other night the committee mentioned above came out to see the ruins. Judge McFarland, who had them in tow, waited until they were sitting down to a seven o'clock dinner to call me over the phone and ask if he could bring them out when they arose from the table. Of course I told him to come along and then a hasty scout around the lot showed everybody off on business or pleasure except Davey, Dale, and myself. As pinch hitters we seemed to fill the bill; at least they went away quite enthusiastic.

The "Desert Trail", which Al speaks of, bids fair to compete with the museum discussions around headquarters. We have had a lot of fun with it thus far and are anxiously awaiting its dedication. Davey and Al have put in a lot of time on the booklet, which will likely run to 20 pages of mimeographed material and we ought to be ready to go within the next week or so.--F. P.

*****SWM*****

WALNUT CANYON

By Paul Beaubien, jr. park
archeologist, Flagstaff, Ariz.

Visitors this month, 231; total since October 1, 1,886.

WALNUT CANYON (CONT.)

There were 231 visitors this month. The roads have been sloppy from several light snows, but were never impassable. Without a ranger here, conditions would be just those desired by "pot-hunters" -- easy access, and few to evade.

The highlight of the month was Hugh Miller's visit on January 8. It was the first time he ever stopped for more than a few minutes. Was glad to see Dale King and J. H. Tovrea for a few minutes on January 21.

During the month I spent some time studying the old register sheets. After the name and address columns, there is blank space which visitors frequently utilized by writing in remarks. Too often these remarks have been uncomplimentary in regard to lack of roads, trails, etc. For almost two years I have used this space by having the date and the time of arrival written after each entry. By having the time of arrival, I was able to identify groups which had been contacted at the ranger station.

I checked over the time of arrival for four of the summer months when there were 7,533 visitors. I found that five percent arrived before 8:00 a. m., and that 19 percent arrived after 5:00 p. m. Thus, a ranger working nine hours a day, seven days a week, could contact 76 percent of the visitors -- if he didn't have anything else to do, or didn't personally conduct any parties to the cliff dwellings.

I also checked addresses for four months, to learn which states were furnishing the most visitors. As tabulating by states takes lots of time, I only checked one of the heavy travel months. Below are lists of the ten leading states for each of four months:

	April, '37	May, '37	Aug. '37	Nov. '37	Average of the four months.
1	Arizona	Arizona	Arizona	California	Arizona
2	California	California	California	Arizona	California
3	Michigan	Oklahoma	Texas	Kansas	Texas
4	Wisconsin	Texas	Oklahoma	Ohio	Kansas
5	Kansas	Illinois	Ohio	N. Mex.	Oklahoma
6	Texas	Missouri	Kansas	Washington	Ohio
7	New York	Kansas	Illinois	Oklahoma	Illinois
8	Penn.	N. Mex.	Missouri	Nebraska	Missouri
9	Iowa	Indiana	New York	Michigan	Michigan
10	Missouri	Washington	Penn.	Penn.	New York

California produces many visitors (more than 19% of the total, and about 27% of the out-of-state); and Washington was tenth in May and sixty in November. Evidently, many western visitors encounter their first southwestern monument in the Flagstaff region. I wonder how many miles off the highway they would drive to see another monument, after sampling the facilities of Wupatki, Sunset Crater, and

WALNUT CANYON (CONT.)

Walnut Canyon?

It was interesting to note that with 4,436 visitors in the four months, every state, Washington, D. C., Hawaii, and 12 foreign countries were represented. April and May produced the same number of foreign visitors, while the heavy travel month of August only produced one more than either. Perhaps foreign travel is not subject to as much seasonal variation as domestic travel. The foreign countries, Brazil, Canada, China, Denmark, England, India, Mexico, Peru, South Africa, Switzerland, Venezuela, and the West Indies, produced only six less visitors than the 12 states of Conn., Del., Idaho, Maine, Nevada, New Hampshire, N. Car., N. Dak., Rhode Island, S. Car., Vermont, and Virginia.

During this month, seven freshly painted signs were placed, and all of the 42 tons of water removed from the cistern.

Should mention that Dr. Harold S. Colton donated eight volumes of the "Museum Notes of the Museum of Northern Arizona" to the monument library. Also, the county spent four days grading the entrance roads.

Three trips were made to Wupatki during the month, and one to Sunset Crater, Jan. 8. One hundred forty one people had registered at Sunset since Nov. 25. The road from Sunset to Wupatki was still blocked by snow.

Clyde Peshlakai has been busy -- most of the time on roads. But with the work scattered along some 15 miles of roads, the results are not impressive except to those familiar with their previous condition.

Forty four visitors had registered at Citadel, and 19 at Wupatki Pueblo.

*****SWM*****

Paul turns in some interesting visitor information in this report and has our thanks for putting in the extra time which it took to gather it.

Again Dr. Colton has added to his already long list of generous deeds and we thank him on behalf of the Service for the valuable volumes which he has given to the library at Walnut Canyon.--F. P.

*****SWM*****

MONTEZUMA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 599; total since October 1, 2,441.

STATISTICAL

Visitors- - - - - 599. Last Year: 172.
Arizona by cars- - - - - 412. - 68.7% of total.
California by cars - - - - - 74. - 12.3% of total.
Total states - - - - - 25.
Foreign Countries- - - - - 2. Canada and England.
Territories- - - - - 1. Hawaii.

Conveyance:

Cars - - - - - 159.
Horseback- - - - - 2.
On Foot- - - - - 5.

Contacts:

Guided field trips - - - - - 136.
Attendance - - - - - 441.
Trips through Castle - - - - - 99.
Those who climbed ladders- - - - - 328. - 74.3% of total on
trips.
Average persons per trip party*- - - 4.69
Average persons per trip group** - - 3.31
Average trip time per party- - - - 56.47 minutes.
Average trip time per group- - - - 39.03 minutes.
Museum talks - - - - - 121.
Attendance - - - - - 417.
Average persons per talk party - - - 4.58
Average persons per talk group - - - 3.44
Average talk time per party- - - - 23.34 minutes.
Average talk time per group- - - - 17.55 minutes.
Special guide trips- - - - - 6.
Attendance - - - - - 51.
Average party and group time - - - - 26.66 minutes.
Unguided trips - - - - - 59.
Persons on unguided trips- - - - - 208.
Average unguided trip time - - - - 16.16 minutes.
Average actual guide and lecture time - 61.4 minutes.
Average group minutes on monument - - - 83.47 minutes.

*Party means total persons on part or all of a trip.

**Groups are natural arrival units of a party.

Weather:

Precipitation - - - - .50. Dec. 24 and 27, Jan. 15 and 19.
Days Cloudy - - - - - 8.
Days Partly Cloudy- - 3.

MONTEZUMA CASTLE (CONT.)

Max. Temp.- - - - - 72 on Jan. 22.
Min. Temp.- - - - - 21 on Jan. 11 and 12.
Mean Maximum- - - - - 63.01
Mean Minimum- - - - - 31.
(Temperature readings are from Jan. 1, 1938)

WEATHER AND ROADS

Weather has been unusually mild, with no snow in the valley. Surrounding mountain country which at this time last year had several feet of snow, now measures it in scant inches.

Approach roads are in fair condition, such as are. By this I mean there are very few approaches now. The road by Stoneman Lake, as is usual in winter, is bringing us no visitors. The road from Pine and Payson is bring very few people, as all wer weather travelers on that route complain of the slippery mud. One hitherto well-traveled road from Oak Creek Canyon to the Castle via Cornville is in such bad condition, due to construction work going on there, that people won't travel it. I am quite convinced that we have lost quite a bit of travel by that road being obstructed, because many people will take that short route to the Castle from Oak Creek Canyon who would not drive the longer road by Cottonwood and Camp Verde.

SPECIAL VISITORS

Park Service: None.

Other Visitors: January 3. E. Hill Leith and his wife, the new proprietors of the Beaver Creek dude ranch, were interested visitors.

January 12. Donald de Leon, former C.C.C. Entomological technician, who needs no introduction to most of us, was in for a short visit. He was accompanied by his sister. He is back now with the Bureau of Entomology and Plant Quarantine, stationed at Fort Collins, Colorado.

January 15. Second Lieutenant Randall P. Leglar, of CCC Camp F-39-A, located at the mouth of Oak Creek on the Verde River, was in with a group of 52 enrollees.

January 16. Robert B. Coleman, a professional cameraman, who works for United Artists and non-theatrical distributors, shot considerable color film of Montezuma Castle.

PUBLICITY

Color films of Montezuma Castle taken by Robert B. Coleman, will be part of a scenic motion picture reel entitled "Wonders of Northern Arizona," which will be part of a 12-reel scenic production "Encyclopedia of the Screen", to be released after the middle of the year by collaboration of United Artists and non-theatrical distributors. Mr. Coleman says these color films, which he is taking on 35 millimeter

MONTEZUMA CASTLE (CONT.)

film, will be reduced to 16 millimeter so that they may be available to schools, churches, various state and county agencies, and chambers of commerce. He states that before these pictures are completed he expects to return here in June and take some more when the foliage is on the vegetation. (The matter of permission for Mr. Coleman to take these pictures was taken up with you by phone.)

ADMINISTRATIVE

New Equipment: One new Electrolux Refrigerator was delivered January 23 when Ranger Jennings returned from a Headquarters trip.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

Maintenance: A thorough cleaning has been given the basement of the custodian's residence, which serves as a machine shop, storehouse, paint shop, laundry, gas house, repository for archaeological and herbarium specimens, etc. etc.

Improvements: A flat top table case, from the old Casa Grande museum, has been installed in our museum room and our textile exhibit placed in it.

VANDALISM

On the night of Friday, January 14, a group of school children built a picnic fire about a quarter mile up Beaver Creek from the custodian's residence. They were shortly joined by five boys who proceeded to make themselves obnoxious by setting a number of fires in the dead leaves of the creek bottom around the camp fire. Then the entire party left, and the original picnickers came to me about midnight and reported the fires. Ranger Jennings immediately went to the scene of the fire, and found it burning merrily. He stomped out the two worst sections of fire, and then the rain came and stopped the rest.

In all, about 200 feet of creek bottom was burned over. This consisted mostly of down leaves, but about a half dozen small willows and water moodys (*bachcharis glutinosa*) were burned so badly they will probably die. The fire also spread up the brush slope far enough to burn half a dozen small mesquite and cat claw bushes, probably enough to kill them.

On Monday morning I rounded up the five miscreants and took them individually before their parents and gave them about 30 minutes each of pretty straight talking to, impressing upon them the seriousness of the offense, attempting to show them how adherence to a moral and legal set of principles would be more advantageous to them than such actions, and telling them that their reactions to my visit would be the determining factors as to whether prosecution would be necessary.

MONTEZUMA CASTLE (CONT.)

This matter was taken up with you in considerable detail in official correspondence, so I only mention it in this report as a routine matter.

NATURE NOTES

On January 6, under the floor of an old equipment whed which Jesse had torn down, we found a large rat's nest. This next was made of shredded Juniper bark, Mesquite leaves, and playing cards. There were rat droppings, and droppings of some larger animal. These latter contained great numbers of Hackberry (*Celtis reticulata*) seeds. Suspecting the rat had been dispossessed of his home, that he might, in fact, have met with catastrophe, we were cautious as we removed the last two or three boards of the floor. And under the last board was a very handsome skunk, almost certainly the Northern Hooded Skunk (*Mephitis Macroura Milleri Mearns*). This fellow had tolerated all the hammering and noises without scenting, but he appeared quite irritated at having his roof taken off over his head, and for some minutes he glared at us while he stamped one foot up and down upon the dry twigs, much as an irate school ma'm might tap her foot in exasperation as she surveyed the class to see which boy had shot that spit-wad.

I ran to the house and got my camera while Jesse and his mother watched the irritated skunk, and when I got back to take the picture, Jesse lifted the last floor board with infinite discretion. Then the skunk looked peacefully around him, his anger all gone, but great curiosity manifest in his attitude. He rooted around through the ruins of the nest a moment, and then came over to investigate Mrs. Jennings and me. He nosed within three feet of us, then changed his mind about visiting, turned his back on us, and plowed, nose first, under the rat nest once more, while I shot his picture. Finally convinced that there was nothing more of interest in the nest, he dropped his nosy manner, and strode briskly away into the bushes, as though he just remembered an important appointment. Although he had kept his beautiful long tail up all the time he was conducting his investigation of his damaged home and the interlopers, he never let loose the least odor, for which we were thankful. Jesse offered to catch it if Uncle Sam would give him two weeks leave on pay during the subsequent enforced isolation, but we had to forego Jesse's offer, not knowing of any government regulations regarding salary status on skunk catching.

It might be of interest to know that several varieties of our ants haven't yet found out it is winter, and have been active all through the autumn and winter to date.

For bird notes, see Betty Jackson's report, appended to this one.

MONTEZUMA CASTLE (CONT.)

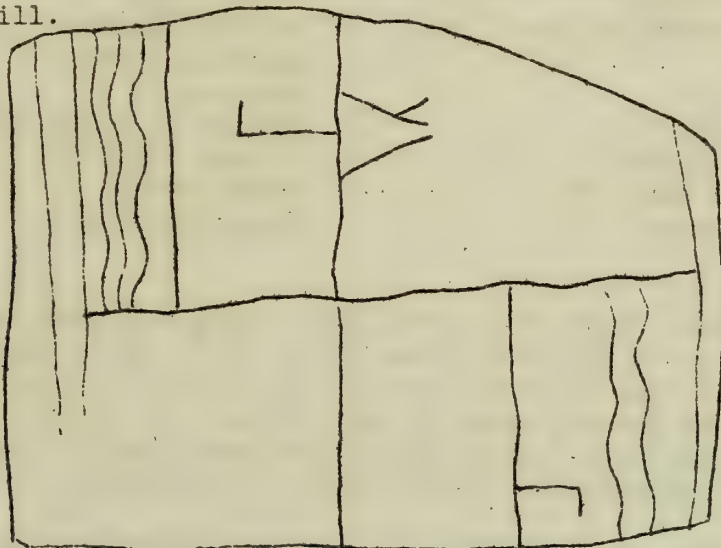
GENERAL

Jesse Jennings made one official trip to Headquarters this month, going down on the 22nd and returning on the 23rd. No other official trips to other stations occurred this month, and no other Park Service contacts.

If you find an over abundance of statistics in my monthly reports, I should be overjoyed to heed any advice you felt necessary in their reduction.

In general, from the custodian's standpoint, affairs have gone quite satisfactorily here this month. Visitor contacts are up a bit, and length of visitor stay has increased over last month.

The labels which I worded for the display case of sexual differences in male and female skulls and pelvi are too complicated for the average person to understand, so will have to be done over. I am beginning to think we will have to give elementary physiology lessons before people will understand any type of bone labels. When one visitor came in and looked very interestedly at a loose mandible for some moments, and finally asked "Is that the upper or the lower jaw?" I realized how much of a job it will be to teach even the simplest anatomy lessons. We won't give up trying to simplify science, though. If we must say that the skull is what keeps the backbone from unravelling, we will.



A MONTEZUMA CASTLE WALL PICTURE

If you care to put this in the supplement, to invite any comment that might be forthcoming, I would be much obliged. It is an accurate copy, reduced one-half in size. The original was incised in the plastered wall of one of the rooms of Montezuma Castle. The sketch has intrigued most of the people who have looked at it carefully, yet

MONTEZUMA CASTLE (CONT.)

we have never received any good suggestions as to even a likely meaning of it. It is so peculiar, and shows such lack of symmetry, that it must not have been intended just as a design.

Would surely be glad if some reader would show this sketch to archeologists or Indians and, if anything interesting shows up, report it in next month's supplement.

Thanks.

*****SWM*****

BIRDS AT MONTEZUMA CASTLE

By Betty Jackson.

This report is written mostly from observations made by Jane Jennings in January. I want to express my thanks to her for keeping the records for the monument unbroken.

Chestnut-backed Bluebird	Bluebird sp?
Arizona Cardinal	Duck sp?
House Finch	Finch sp?
Red Shafted Flicker	Geese sp?
Cooper Hawk.	Desert Sparrow Hawk
Sharp-shinned Hawk	Mud Hen?
Treganza Blue Heron	Oregon Junco
Ashy Ruby Crowned Kinglet	Belted Kingfisher
Gambel Quail	American Raven
Western Robin	Road-runner
Gambel Sparrow	Western Chipping Sparrow
Red-naped Sapsucker	Crissal Thrasher
Hermit Thrush (var. ?)	Cedar Waxwing
Cactus Woodpecker	Baird-Bewick Wren
Wren sp?	

On December 24 at 5:15 p. m., Earl heard a honking overhead and looked up to see a flight of geese going over. He roused us all out, and we were in time to count at least 25 of them, flying in a perfect V formation and heading about 10 degrees west of south. They were going very fast, and we would never have seen them if they hadn't called Earl's attention to their presence by honking.

On the 29th, Jane and Jesse saw what they believe to have been mud-hens flying over. Also on this day Jane saw the bird I have listed as Bluebird sp?. It looks like the Eastern Bluebird more than anything else, but we can't track it down.

Something frightened a Kinglet by the tent, and he ruffed up his crown and complained in a shrill angree "Wee-wee-wee". First he lit on Jane's clothes line, then moved to a tree a few feet from her,

BIRDS AT MONTEZUMA CASTLE (CONT.)

where she was able to observe the opening and closing of the red crown perfectly. First the feathers on the head separated in a slit, then the red feathers stood up through, forming the complete "Ruby Crown" as the crack widened to include the whole top of the head. The process reversed when he calmed down.

On January 1 a bird got very familiar with the Jennings. The door of the tent was open, so he hopped in, perched on the rung of a chair, and looked around at his hosts. He sat there gently twittering for a minute or two, while they watched, then turned around and hopped out. Later he was seen feeding on bread crumbs under the canvas as they have over their woodpile.

The bird looked sort of like a Baird-Bewick wren in markings, but his shape is quite different. He is much stubbier -- sort of like a little ball with a tail. The tail is shorter than the wren's, too. He's been seen around in the bushes quite a lot.

The cardinal has been giving a morning entertainment daily since January 2, sitting on the top of a tree near the tent and singing.

The Robins were last seen on January 9. They seem to have left us now.

On this same date Earl saw the Cactus Woodpecker spending several hours eating the leaf-galls on the hackberries.

On January 5 the Cedar Waxwings were seen in a large flock, apparently collected for their departure, for that's the last that has been seen of them.

Mrs. Jennings saw the Road Runner on January 9, and again later very close to the tent.

Also on the 9th, and again on the 10th, Jane and Jesse saw flights of ducks. They were unidentifiable.

The Bluebirds seem to have petered out, instead of leaving in a bunch like the Robins and waxwings. There are about three left now.

On the tenth Jane saw something very interesting. She was watching a flock of sparrows and house finches feeding in the bushes when suddenly they all dropped to the ground, where they crouched, perfectly still. She looked up, and there was a sparrow-hawk, flying close to the ground.

She didn't hear any alarm note given, but says she might have failed to notice it, not being on guard.

BIRDS AT MONTEZUMA CASTLE (CONT.)

On January 11 she saw a bird she thinks is a finch, feeding on the sycamore balls. The description is similar to a goldfinch, but there was no black on the head, only the greenish yellow that was also the color of the back. As he sat on a twig, he reached out with one foot, caught the twig supporting the ball, and pulled it to him, then with his beak he pulled it apart, sending the fluff over his shoulders in both directions, but not making a sound.

On January 22 I saw a Sharp-shinned Hawk on the road to Camp Verde, about a quarter mile from the west boundary of the monument. He's the first I've seen here.

*****SWM*****

These are the usual good reports from the Montezuma Castle. I am as anxious to hear any comments on the wall picture as anyone because, with Earl's Dad I have spent various hours guessing what it was all about without coming to any conclusion. I think there can be no question about its age, it is not modern.--F. P.

*****SWM*****

NATURAL BRIDGES

By Zee Johnson, custodian,
62½ South Main, Salt Lake
City, Utah.

Not much to write about this time. Only still glad to be alive and on the job.

I have made one talk or lecture on the Bridges to 268 interested listeners and have contacted 387 in other places and other ways. Nearly every mail brings inquiries about the monument and other scenic parts of Utah.

We are having a very mild winter here and I hear it is about the same at Blanding. Mrs. Johnson and I are enjoying best of health and are anxious for spring to come so we can go home to the Bridges.

*****SWM*****

WHITE SANDS

By Tom Charles, custodian,
Alamogordo, New Mexico.

I have often heard that it doesn't make much difference whether you have one child or eight, it takes all your time anyway. I am just beginning to realize the truth of that statement. Take this matter of Public Relations: before I got a full time ranger I didn't have much trouble in talking the Chamber of Commerce out of putting on a White Sands float for the Sun Carnival, or making a drive for this cause or that one, because I was too busy, but since Jim is on

WHITE SANDS (CONT.)

the job at the White Sands it seems that they think my time is open for any free job.

Just what is a custodian's obligation in this matter of "community service"? I want to know. When the Governor of the State writes you that you are the county chairman for the Crippled Children's Fund, what you going to do about it? Well these were the questions I had to answer this month. I feel that the fact that I was custodian of the White Sands had much to do with my being appointed so I accepted the job graciously and have pushed the work vigorously. We have organized every part of the county. In the past two weeks, through several committees, I have put on two dances, a double header basketball game, an enchilada supper, a tag day, a community singing, and a farm market where all products were donated and then auctioned off to the public. Fortunately, every one of them was a "hum-dinger". For instance, the Spanish American girls gave the enchilada supper. They arranged to feed 125, but they actually fed nearly 200. The Junior Woman's Club, a group of girls from 15 to 18, put on a tag day and contributed \$21.65 for the benefit of crippled children.

In addition to this, I had the pleasure of presenting the last year's development at White Sands to the annual meeting of the local Chamber of Commerce with representatives from Tularosa and Las Cruces. That job is always a pleasure, for this youngster of ours holds its own pretty well in any show ring. So you see, Boss, Jim relieved me at the White Sands but I was busy in Public Relations and it doesn't make much difference whether you have one child or eight. It takes all of your time anyway.

The newspaper boys have been kind to us again this month. Bill Robinson, dean of New Mexico Newspaper men, grew dramatic in his syndicated column this week over Adrey Borell's dried-up duck farm. "The Carlsbad Caverns had over 200,000 visitors last year", says Bill, "But the White Sands entertained over a half million visitors during that time. Travelers from other states and countries, from the tundras of the arctic to the jungles of the tropics. They all rested from the wear of the open road, grateful for the shelter and beauty of the marshes and the vast expanse of gypsum. They did not require the trained guides and concealed lights like the other 100,000 who made the turn-around in the world's greatest natural amphitheater, they left no record but will be back again this fall". It is the never ending variety of feathered people that gives Mr. Robinson his inspiration. He lists a few like the Snowy Gulls on their way from sea to sea; the Canadian Swan; the lively little Savannah sparrow, even the Palm Warbler, all hosts where they have no fear of hunters.

Too bad, Bill, you write as Borell and the Wildlife Department planned that it should be, but the 200-acre lake has dwindled to 10, aye, maybe 5 acres; the six swans have dwindled to none, and the rest

of the birds in proportion.

Cyrus McCormick, editor of the New Mexico Sentinel gave the White Sands a three column spread last week with a picture of the headquarters building. It was an unusually informative article.

Miss Laura Treaster writes from Denver that she has sold a White Sands story to the Michigan Motor News to appear in an early number, while "Picturesque" gave us a full page, with five pictures and a fine story. "Picturesque" is a Who's-Who of the Southwest's attractions so we consider that breaking into the lime light. "Desert", a new southwestern magazine published at El Centro, California advises that they will carry an illustrated White Sands story in a forthcoming issue, while our mutual friend Dr. Halliday gave us a nice story in the Log Book, a college publication for his school of osteopathy in Des Moines, Iowa. Looks like they are fine friends that we have in the newspaper profession.

On the 13th of this month the New Mexico Highway Commission let the contract of ten miles of new blacktop on Federal Highway 70, between the White Sands and Las Cruces and word has trickled through via the grapevine that Governor Tingley expects to finish that road this summer.

Another bit of good news came to us this week with H. H. Cornell's visit and the suggestion that the picnic ground troubles have been about ironed out and that development may be just around the corner. So, you see, Boss, we are doing nicely, we are looking back on the period when growing pains might be expected and everything looks bright for the future.

WHITE SANDS RANGER REPORT

By Jim Felton, Alamogordo, N. Mex.

TRAVEL

We may as well open on the subject causing the most discussion around here. The question is--to add or not to add! During my absence on leave Mr. Shepperd counted our visitors, and after my return we both indulged in this activity. An attempt was made to check every car that came into the monument via the oil surface highway.

Also a little "dope" was gathered on the travelers who park along Highway 70 and walk the few yards to the Sands; they must be classed as visitors. On an average, we found as many visitors taking this short way to the monument as are driving in on the new entrance road. Many of these "roadside dudes" park down below Ridinger's station, completely out of sight from any point near headquarters; therefore, it is impossible for one man to get an accurate check on all. Last month this Barry Mohun count was Greek to me. Now that I know how these statistics were gathered, the 14% registration figure is plausible. It was figured from all visitor contacts, including my roadside friends, which is, of—
SOUTHWESTERN MONUMENTS 48 MONTHLY REPORT FOR JANUARY, 1938.

WHITE SANDS (CONT.)

from all visitor contacts, including my roadside friends, which is, of course, correct. Our total number for the month is a bit short using this method, but is near enough so that we can forget the difference.

Our registered visitors numbered 1,043, while we counted 555 cars with 2,365 people to the White Sands via the monument highway. Multiplying this by two for the uncontacted, estimated visitors along 70 we have a grand total for the month of 1,110 cars and 4,730 visitors. Guess I short-changed White Sands on the count last month; however, this number is going to be a question until Highway 70 is realigned.

CONSTRUCTION

In my absence, the RD project made notable progress. It looks as if a branding corral were going to be added to the lay-out. It encloses the gas and oil house which has in connection a pen for oil barrels.

The power house is now in the picture, but it lacks the roof, floor, fixtures, motor, etc.; however, I guess an architect would say that it is 75% complete.

Much crashing and banging in residence number two indicates that the boys are at work and will reach the stage of finishing touches soon.

GENERAL

After a good vacation at home which included three, perhaps I should say four, short visits at Headquarters, we are glad to be back in harness. The last stop at Casa Grande was rather an impromptu affair, for after getting some 75 miles out toward the White Sands, one of the knees on the Chevrolet broke, necessitating a forced landing. With the help of a goodly portion of the Headquarters staff, we returned to spend a pleasant night and make the successful start the next morning.

The most interested visitor to the monument during the month, in the opinion of the ranger, was Adrey Borell. We really went places together--in the monument, Boss. The White Sands porcupine had a narrow escape, for we tracked him up and down the sand hills, but we were in the same predicament as a much publicized Arizona sheriff--just 15 minutes behind our victim, but unable to overtake him.

My introduction to the lake side of the sand pile was made during these days. Adobe Walls looks like a good place to propagate quail. According to the old timers, they were once native in this section--the quail I mean. It's over along the lake bed that the geological story of the Sands comes to light. Well, you can see from this that I think the west side of the monument is tops!

WHITE SANDS (CONT.)

WEATHER

The big December snow storm touched the edges of the White Sands, Ice on the highways, especially in the mountains, made roads tricky and visitors scarce for a few days. The past three weeks brought many warm days and only a few nights with freezing temperatures. A corresponding increase in visitors in this period has been noticed. Our largest crowd for the month came last Sunday when weather conditions might have been described as ideal. On the cloudy, cold days, we have had only three or four cars.

PARK SERVICE VISITORS

On January 13 and 14 A. E. Borell checked the birds for this season against older records. No new feathered visitors were added to our winter bird lists.

H. H. Cornell and Mr. Lackey of the Regional Office conferred with Custodian Charles on the 20th. They let me in on their pow-wow which was held on the highest sand hill near the proposed picnic area. It's agreed that we are to have some tables and possibly the culvert type shelter. Someone even mentioned a substitute for the present Chic Sale.

*****SWM*****

Tom, you raise a real question when you ask just what is a custodian's duty in the matter of community service.

I should say that so long as it doesn't actually interfere with his duty to the Government, he should go as far as seems feasible. We encourage our men to join local chambers of commerce, Rotary, Kiwanis, or Lions clubs, and to help out in local matters. They should, of course, stay out of all local or factional quarrels, and, equally of course, politics is completely out of the question in all its roots and branches. This will give a man a pretty big field to be of use to his neighbors and should not interfere with his duties to the Government.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

Visitors this month, 25; total since October 1, 261.

WEATHER AND ROADS

Weather has been ideal this month with the exception of a few days. There has been very little snow in the monument. We had considerable fog the first week, which resulted in heavy frost covering the trees

ARCHES (CONT.)

and sagebrush. The temporary road from U. S. Highway 160 (formerly 450) into the monument is in very good shape. The sand is packed hard and no washouts have occurred. There have been only a few days during the winter season when one could not have made an enjoyable trip to the Arches.

VISITORS

There have been few visitors this month. I feel sure many more persons would visit the monument during the winter if they were aware of the favorable conditions. Of the few who visited the monument, only one car was from out of the state.

MISCELLANEOUS

My brother and I have made two hikes into the territory just across the Colorado River from the Arches. This area lies north and east of Moab. One of the most remarkable features we found was the view one gets of the Arches from a high ridge of sandstone known locally as "Lion's Back". This sandstone ridge, which is the highest point between the Colorado River and Moab Valley, extends from a point near the Colorado River bridge (U. S. 160) to the rim of Wilson Mesa at the foot of the La Sals. At one point of observation, we had the river canyon with its perpendicular walls hundreds of feet high in the foreground and a beautiful panorama from the Court House Towers to the Windows in the distance. One can see blue sky through the Massive Arch (south window) which stands out on the skyline.

We found a small but perfectly shaped natural bridge which is so completely hidden that no doubt it has been seen by but very few persons. The span of the bridge is about 16 feet, the height eight feet, and its thickness is less than two feet. It spans a natural watercourse. The top is almost perfectly level and the arch is very symmetrical.

This trip especially to the point overlooking the Colorado River Canyon would make a splendid side trip from Arches National Monument as it is easily reached on horseback over a very good stock trail.

*****SWM*****

This is a good report from Harry and we are interested in the new arch on the east side of the river. We were surprised to hear the mild winter of the Southwest is reaching as far up as the Arches National Monument and will watch the February and March weather up there with considerable interest; for it seems to us there is some winter some place ahead of us yet, since we have none behind us thus far this year.
--F. P.

*****SWM*****

GILA CLIFF DWELLINGS

Just to show you the kind of cooperation we get down in our district, we submit the following:

"Dear Mr. Pinkley:

"Reference is made to your letter of December 27, 1937, in regard to fencing needed in the Gila Cliff Dwellings National Monument.

"Kindly be advised that during the early part of this month, Ranger Woodrow together with Mr. Wm. Laney, grazing permittee, completed short pieces of fence thereby making the Cliff Dwellings place free from depredation because of livestock grazing in this area.

"In regard to furnishing you with a photograph of the completed fence, Mr. Laney's son who assisted with the work, took some pictures of the fence, and he signified his willingness to give us a copy of the photograph; upon receipt of photograph you will be furnished with a copy.

"In the construction of this fence, salvaged wire was used and no cost except contributing time was involved. Of course, you appreciate the construction of this fence is only of a temporary nature, but it will serve the immediate need for excluding stock from the above mentioned area.

"In case we are able to cooperate with and assist you in the future, please do not hesitate to call upon us.

Very sincerely yours,

(SGD) L. R. Lessel
L. R. LESSEL,
Forest Supervisor."

Do you wonder that the feelings between the Forest and Park Service are so cordial in the Southwest?

*****SWM*****

CHACO CANYON

By Lewis T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 73; total since October 1, 685.

This finds me sitting up here on Threatening Rock this morning,

which may seem a heck of a place to write a monthly report, to you and the rest of the happy family of the Southwestern Monuments. But I wish every doggone one of you were up here with me, it is such a fine day, just like a spring morning. And to sit here and look down on old Pueblo Bonito is something that will give you a grand feeling when everything else fails. Also you can look up the canyon a few hundred yards, and there sits old Chettro Kettle that is doing her best to puff up her feathers and make you think that it is just as grand as old Bonito. But, Boss, she will "sho" have to do some puffing. There across the canyon is Casa Rinconada, the largest and grandest old Kiva in the Chaco, sitting there on that little hill so it can see what is going on all over the floor of the canyon, from Hundo Pavi which is up the canyon, to Penasco Blanco, which is down the Canyon about one and a half miles (only it is not on the Canyon floor, but sits out there on that old rock point.) You can also look over Pueblo del Arroyo, Klen-Klet-Soi and dozens of small ruins from here.

Since most of the concrete has been removed from Pueblo Bonito it looks much better, for those places that were covered with concrete did show up like a gold piece on a sidewalk. The Kivas show up much better also since the dead-corners have been cleared out. I believe by May 1 we can show our visitors more of Bonito than they ever saw before and it will take a lot less time than it has in the past, as we can show them several different things and places from one or two stops, where it did take maybe a dozen stops. They can see the fire-pits and other things in the floor of several small kivas that have been covered up in the past.

After reading last month's report, I find that I am supposed to be somewhere over in Arizona and formerly of Chaco, but when I awoke this morning I was still here in this good old wind-swept gully called Chaco.

Boss, yesterday when I started this report I was talking about the very fine weather we were having, but this afternoon, which is January 23, I have changed my mind. I have just returned from Penasco Blanco with a party of four people, and it is snowing like the devil; the wind must be blowing about 50 miles per hour. I saw something pass over that looked like it may have been a Park Service hat from over Aztec or de Chelly way, but I guess it was either a sun bonnet or a tumble-weed.

I have had through the monument this month 73 visitors, from the following states: Calif., Colo., Ariz., Kans., Okla., and N. Mex. The District of Columbia was also represented.

On the 12th of this month Mr. John C. McPhee and Mrs. Mae C. McPhee were in the monument for several hours taking pictures of the work that was being done by the Mobile Unit and other pictures of the

CHACO CANYON (CONT.)

ruins. Mr. McPhee is publicity man for the Navajo Service from Window Rock, Arizona. Mr. McPhee asked me to take some of my pots, skulls, and so forth, from the museum (blacksmith shop) out into the ruins of Pueblo Bonito so he could get a picture of them. While we were out there he asked me to pose for him with an armfull of pots, skulls, etc., because he wanted a picture of an archeologist with his treasures. I told him I wasn't an archeologist, so he told me just to stand there and look dumb. Of course, that was easy. Then he took another one of Vivian and me, I looking like an archeologist and Vivian looking natural.

The weather has been just fine this month until today, that is, it has been fine for January. The minimum has been 9° above, the maximum was 55° ; precipitation, .18; with only $2\frac{1}{4}$ inches of snow for the entire month, still patches of snow sticking about on the north hill sides. Five cloudy days, 7 partly cloudy ones, and the balance clear.

Threatening Rock is still restless. Maybe it is the cool nights, but anyway, it has moved outward since August. I have just returned from up on that said rock in this snow and wind storm. It measures $2\frac{3}{4}$ on the east end, $2\frac{7}{8}$ in the center, and $2\frac{3}{4}$ on the west end. If John Keur and Ranger Hastings had a disagreeable time measuring that rock last summer, they should try it alone during a snow storm, when there is ice and snow all over it.

I notice in last month's report that Budlong had re-covered his roof. I am very sorry, Bud, I didn't know it was missing.

The road conditions, both directions, are better than they have ever been before. The Indian Service has been grading the road between Crownpoint and Seven Lakes, and several of the bad places already fixed.

Guess I had better close this, get a little sleep, and see if I can get it out to a railroad tomorrow.

*****SWM*****

We have been turning these Threatening Rock measurements over in our mind and doing some wondering. The measurement was set at the east, center and west points of the rock last summer at exactly two inches. In December the east was out $10/16$ inch, the center, $11/16$ inch, and the west, $9/16$ inch. Now in January the east is out $12/16$ inch, the center $14/16$ inch, and the west $12/16$ inch.

This means that the rock has come forward about $3/16$ inch, or at least that it was forward that much at this last measurement. I do wish, Lewis, that you would make some daily measurements on it for a while; one in the morning and one in the evening, and check the wind at the same time. I am wondering if we will not find as much as two or three sixteenths variation after the sun has shone on the outer

face all day, or after a strong wind has been blowing through the gap against the face of the rock.--F. P.

*****SWM*****

GRAN QUIVIRA

By George Boundey, custodian,
Gran Quivira, New Mexico.

Visitors this month, 103; total since October 1, 713.

Visitors for the month of January: 103. This is quite a bit under January visitors for the past several years and the weather is not entirely to blame either, as we have had some good days as well as a lot of snow, cold, and high winds. The visitors we have had are the worthwhile kind and without exception were enthusiastic over the possibilities of this monument.

Dr. C. W. Serbel, John D. Anderson, Floyd V. Stuler, and H. C. Pipkin, all of Texas State College, Amarillo, Texas, spent an afternoon here, photographing and making a general survey of the ditches from which the pueblo people here obtained their water supply.

P. J. Klingenberg and E. C. Tatum, of the Soil Conservation Service, and R. S. Campbell, of the U. S. Forest Service, Berkeley, California, spent some time on the monument looking over the conditions under which the old people lived before the over-pasturing by sheep and cattle took place.

This being one of our quiet months, I have been checking over the condition of road signs along the various approaches to the monument and with the exception of several in the vicinity of Carizozo they are now in good shape.

I am keeping a check list of about 25 birds which frequent our watering place but as we feed also, I am quite sure some of the birds wintering here this year do not as a rule stay here during midwinter.

A woodcutter working in the Cibola National Forest a few miles to the west of us, was found frozen to death about two miles from his camp.

Of all the birds and animals on the monument, I think we like the skunks best. We have one up at the Mission that is as tame as any kitten, but there are two that play around the house that are more amusing than any animals we have ever observed. They are not albinos, but have more white on them than any we have seen before. Their tails are about 18 inches long and they carry them straight up in the air and as the hair is very long, they resemble the tail of a peacock when spread out. They do everything that two kittens would do

GRAN QUIVIRA (CONT.)

in playing together but they seem to like "follow-the-leader" best and they will march for 15 or 20 minutes at a time round and round with tails fully spread.

*****SWM*****

It is rather interesting that both Gran Quivira and Montezuma Castle turn in skunk stories the same month, and both in praise of the gentle little beasts. The average reader of this report will hardly think of a skunk in such an interesting light and as such a pleasant companion.--F. P.

*****SWM*****

TUMACACORI

By Louis R. Caywood, custodian,
Box 2225, Tucson, Arizona.

Visitors this month, 1,943; total since October 1, 4,493.

VISITORS

In spite of the reported poor visitor travel throughout the Southwest, there have been 1,943 visitors this month which is a slight drop below 1,964 of last January. Of the 1,943 who visited the monument, 1,590 were guided through the mission and 353 either looked from their cars, saw the mission without a guide, or merely used the facilities.

Some old friends of the Park Service dropped in to see Tumacacori on January 3. Dr. and Mrs. Jolton and Katherine Bartlett, all of the Museum of Northern Arizona, Flagstaff, had been to Guaymas, Sonora, for a few days and I had almost given up seeing them, knowing they were in Mexico, but they paid us a good long visit.

Father Juan, Superior in charge of old San Miguel Mission in California, paid us a visit on January 21. On my way to Berkeley in October I visited both San Miguel and San Antonio missions which are under Father Juan's supervision. At that time he promised to visit Tumacacori but little did I think he would, and it was quite a surprise to see him. Father Juan promised to loan some of the old Franciscan vestments which are at San Miguel mission to the Tumacacori museum, if possible.

Park Service visitors included the following: Mr. and Mrs. Louis Schellbach and son, Grand Canyon; Luis Gastelum and Millard Singerman, Coolidge; Frank Russell and Milo Christiansen, Santa Fe; J. H. Tovrea, Coolidge; and William Burnham, Project Superintendent, Camp SP-11. William Macy, Museum Division, Washington, D. C. stopped to show how the museum cases should be put together.

WEATHER

January 20 brought the first storm of the year with rain and snow. The snow fell in huge flakes and soon covered the ground to a depth of about two inches. A group of 35 students from the Nogales Public Schools visited the monument and had a grand time snow-balling. By noon the next day the snow was gone. However, it reminded me of Chaco Canyon and the trips Lewis McKinney and I took to the Chaco ruins and how we climbed Fajada Butte one cold windy day.

The cattlemen and farmers really needed the moisture which fell during the snow and rain storm. It will soften the ground for plowing and make the grass grow on the cattle ranges.

The weather, aside from the snow, has been so temperate and spring-like that it has fooled the cottonwoods along the Santa Cruz river into shooting forth their waxy growth just previous to blossoming and bearing. No doubt the snow and the succeeding cold days will discourage any further growth.

MUSEUM

The museum and administration building lost some of its new appearance during the storm. There are water stains above the wainscoting in many places. The red water drains have peeled in places, exposing a white surface and the cream colored exterior finish has cracked and washed off in places. Alkali is soaking up from the ground along the walls in many places. Alkali also appears along the sides of the red drains. However, I think this weathering adds much to the building. Just like a new pair of boots--they are much better after being broken in.

Two and one half tons of museum cases (not exhibits), tables for cases, etc., arrived at Nogales and have all been hauled to the monument and stored in the museum building. All of the equipment came knocked down from the Western Museum Laboratories at Berkeley, California, where it was made in the shops. Most of it was hauled to the monument in the Government pick-up, but three large cases were too long for the pickup and had to be hauled by Peoples Freight Lines, Inc. The next step will be to turn carpenter and assemble the tables on which the cases will rest. The cases themselves and the glass fronts will be fitted together with aluminum strips.

The new question most often asked now by visitors is whether the new building is the church and when will there be services? What if the building had been in the shape of a cross!!!

BIRD BANDING

Bird banding has been resumed to some extent after a long vacation with the following results:

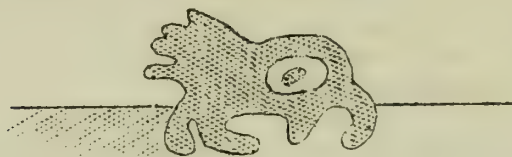
Gambel Sparrow - - - - -	52	Gambel Quail - - - - -	3
Green-tailed Towhee- - - -	2	Arizona Cardinal - - - -	1
Canyon Towhee- - - - -	4	Cactus Wren- - - - -	2
Palmer Thrasher- - - - -	4	Pyrrhuloxia- - - - -	1

*****SWM*****

Fathers Juan and Bonaventure drove quite a distance out of their way to come past Casa Grande for a little visit. Padre Bonaventure had been here only a month or so ago but I had not seen Padre Juan since he came out of the Apache country on his way over to take charge of San Miguel and that was three or four years ago. Naturally, there was a lot to talk about. Padre Bonaventure, by the way, said he had a small booklet on San Xavier which would be off the press soon. Be sure to get that in your library at once, Louis, and we will get copies for the headquarters library.

Tov. and Jack Haile spent part of a day looking over San Xavier last month on the possibility of expending some WPA funds in its stabilization. The tough problem is to decide whether to handle those cracked arches with unsightly steel rods across the nave on the inside or with buttresses or flying buttresses against the outside. Tov. hasn't had time to figure stresses and strains yet, but I am anxious to see in a perspective sketch what the possible flying buttress will look like. To the objectors who will say none of the Arizona chain of missions had flying buttresses we can point out those on the towers at San Xavier; one doesn't think of them as such, but that is what they are.--F. P.

*****SWM*****



HEADQUARTERS

Custodian Bicknell reports the following Headquarters work: Repairs and improvements were made on the following cars. the knee action mechanism was repaired on USDI #8114 after towing it in from 21 miles east of Florence; valve grinding job and new rings and piston expanders placed in USDI #1801; headlights repaired, new battery and cables installed on USDI #1803, and a Stewart-Warner Heater placed in the Boss' car, USDI #13916.

A fuel-oil heater was installed in the Bachelors' Quarters, and racks for fuel oil barrels were built for the Pops, King, the Dodges, and the Bachelors. The gas stove in King's quarters was overhauled. Celotex and an insulating wall was built in the Naturalists' office.

The stand pipe on the sewage disposal line was packed to prevent freezing. One day was spent hauling fertilizer in cooperation with Asst. Naturalist King's arboretum planting program.

*****SWM*****

Dale S. King, park naturalist.

BRANCH OF EDUCATION

The Educational Staff for the month of January was composed of Park Naturalist King, Junior Park Naturalist Dodge, and CCC Enrollee Marvin Hale, who is temporarily assigned to this department. Junior Archeologist Steen continued his temporary assignment on contact duty at Tumacacori National Monument in a relief capacity.

TIME SPENT ON VARIOUS PROJECTS:

	<u>King - Steen - Dodge - Hale</u>		
	<u>Days</u>		
<u>General Office Work</u>			
Correspondence (King 162 letters; Dodge, 88) .4-3/4		1	
Conferences and discussion			
With Headquarters staff.....	1/2		1/2
With visiting scientists, artists, technicians.....	1-1/4		
Library (file, rearrange, issue publications).....	1-3/4		1/2
Reports			
Monthly.....	1/4	7-1/2	8-1/2
To Washington Office.....	2	1/2	
To Region III Office.....	1/4		
Miscellaneous.....	1/4		

BRANCH OF EDUCATION (CONT.)

Publicity	King Steen Dodge Hale		
Prepare and issue informational and publicity material.....		1-1/2	2
Check Region III publicity releases.....	1/4		
Miscellaneous			
Painting and carpentry work.....		2-1/4	
Wrapping and mailing materials.....		1/2	

Research and Education

Public Contact

Outside lecture preparation and delivery.		1/2	
Guide duty at monuments.....	3/4	25	1
Office visitors.....			1/2

Museums

Acquiring equipment.....	1/2		
Planning.....	1/2		1/4
Arboretum planting and preparation.....	1/4		4

Visual education

Slide library inventory and arrangement..	1/4	4	
Photography.....	1/2		1/2
File prints and negatives.....			3/4
Printing, developing and enlarging.....			1/2

Casa Grande CCC Side Camp educational

program.....	2-3/4		
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Flora and fauna observations and bird band..	1/2	3-1/4	4
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Establish Bandelier bird banding station..	2-1/4		
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Ruins stabilization project administration.

Mobile Unit at Chaco Canyon.....	3/4		
Bandelier.....	1/4		
Aztec Ruins.....	1/4		

Field

Field trips

Tonto.....		2	
Region III, Bandelier, Chaco Canyon, Walnut..	6		
Total for 25-working-day month.....	27	25	25-3/4 22-1/4

During the month the routine work has been kept current and the bird banding records have been brought up to date. In addition, the lantern slide collection has been thoroughly gone over and inventoried.

Hale has carried on much of the "leg work" involved in bird banding, and has operated the mimeograph machine for all materials put out, including the monthly report. He has also broken and prepared the ground for arboretum planting, done painting and carpenter work, and numerous errands and odd jobs.

PROCESSED MATERIAL

The following pieces were mimeographed during the month:

BRANCH OF EDUCATION (CONT.)

2000 copies of the Aztec Ruins Informational leaflet.

70 copies "General Information on Aioaba Preservation".

SOUTHWESTERN MONUMENTS LOAN LIBRARY

Loan and return records were kept current and the library was available for cataloguing new books. Accessions for the month consisted of 74 books, 130 pamphlets, and 30 periodicals.

ACCESSIONS

The 55,000 Southwestern Monuments folders, about half of which have been received, constitute the major accession of the month. This folder gives a brief outline covering the location, features, size, and accessibility of each of the Southwestern Monuments together with guide maps and sketches picturing the monument features. It was printed by the Government Printing Office and is now available for distribution. In addition, the following accessions are received: 500 folders for film, nine glass stencils, three lizards, two centipedes, and one scorpion; 20 pottery stands.

BIRD BANDING

Bird banding activities at the Headquarters station have been continued throughout the month with the following results.

<u>Species</u>	<u>New</u>	<u>Repeats</u>	<u>Returns</u>
Dove, Western Mourning- - - - -	1	10	0
Quail, Gambels- - - - -	11	35	2
Shrike, White-rumped- - - - -	1	0	0
Sparrow, Gambels- - - - -	4	30	6
Thrasher, Crissal- - - - -	2	2	0
Woodpecker, Gila- - - - -	1	1	1
Wren, Cactus- - - - -	1	1	1
Total- - - - -	21	67	10
Total birds handled- - - - -		-98	

SLIDE LIBRARY INVENTORY

With the request for an exchange of slides from Yosemite National Park and the starting of a slide collection at the Santa Fe Regional Office, a thorough overhauling and inventory of the Headquarters Slide Library was accomplished. In addition, a number of negatives were sent to the Berkeley Museum Laboratory for making up into slides. The slide library inventory follows:

<u>SUBJECT</u>	<u>NO. OF SLIDES</u>	<u>SUBJECT</u>	<u>NO. OF SLIDES</u>
Arches	8	Biology	32
Aztec Ruins	22	Kayenta Pot Designs	19

Number of new individuals of each species banded in Southwestern Monuments since July 1, 1937.	Bandelier		Headqtrs.		Navajo		Pipe Spring		Tumacacori		Walnut Canyon		Total	
	Jan.	Pre.	Jan.	Pre.	Jan.	Pre.	Jan.	Pre.	Jan.	Pre.	Jan.	Pre.	Jan.	Pre.
Gambel Quail			11	17					3	0			14	17
W. Mourning Dove			1	0									1	0
Pallid Horned Owl			0	1									0	1
Rd-naped Sapsucker											0	1	0	1
Mearns Woodpecker											0	3	0	3
Lewis Woodpecker											0	8	0	8
Gila Woodpecker			1	1									1	1
Rd-shafted Flicker											0	1	0	1
Say Phoebe	2	0											2	0
Long-crested Jay											0	1	0	1
Evening Grosbeak											0	2	0	2
House Finch			0	6			1	1					1	7
Crossbill											0	77	0	77
Grn-bkd Goldfinch							2	6					2	0
W. Vesper Sparrow					0	2							0	2
Gambel Sparrow			4	14			78	134	52	0			134	148
Shufeldt Junco	3	0			0	19					0	2	3	21
Montana Junco					1	14							1	14
Pink-sided Junco	2	0			0	6							2	6
Gray-headed Junco	19	0			0	3					0	1	19	4
Red-backed Junco	2	0			0	1					0	5	2	6
Song Sparrow							4	8					4	8
Spurred Towhee							2	1					2	1
Canyon Towhee									4	0			4	0
Green-tailed Towhee									2	0			2	0
Arizona Cardinal									1	0			1	0
Arizona Pyrrhuloxia									1	0			1	0
White-rumped Shrike			1	0			1	0					2	0
Palmer Thrasher									4	0			4	0
Crissal Thrasher			2	3									2	3
Cactus Wren			1	0					2	0			3	0
Rock Wren			0	1									0	1
Rocky Mtn. Nuthatch											0	5	0	5
Pygmy Nuthatch					0	2					0	72	0	74
Mountain Chickadee											0	1	0	1
Townsend Solitaire											0	5	0	5
Western Robin											0	9	0	9
Chestnut-bkd Bludd											0	67	0	67
Total	28	0	21	43	1	47	88	144	69	0	0	260	207	494
Grand Total	28		64		48		232		69		260		701	
(Arrangement of species is that of the A.O.U. check-list of 1910)														

BRANCH OF EDUCATION (CONT.)

Bandelier	3	Kofa Mountains	2
Canyon de Chelly	4	Miscellaneous	43
Capulin	1	Missions	115
Casa Grande	33	Petrified Forest	18
Chaco Canyon	29	Tombstone	9
Chiricahua	8	Tuzigoot	8
El Morro	20	Bryce Canyon	3
Gila Cliff	1	Crater Lake	1
Gran Quivira	8	Glacier	2
Hovenweep	3	Grand Canyon	14
Montezuma Castle	23	Grand Teton	2
Natural Bridges	0	Mesa Verde	9
Navajo	36	Rainier	4
Organ Pipe	1	Rocky Mountain	8
Pipe Spring	5	Sequoia	4
Rainbow Bridge	1	Yellowstone	12
Saguaro	5	Yosemite	11
Sunset Crater	0	Duplicates	63
Tonto	4	Tumacacori	24
Walnut Canyon	6	Broken beyond repair	9
White Sands	3	Sent to Yosemite	26
Wupatki	28	Sent to Regional Office	48
Total slide collection		657 slides	
Total discarded or sent away		83 slides	
Library balance		574 slides	

NATIONAL PARK SERVICE VISITORS

Richard Sias, Jim Felton, Tom Onstott, H. Hemmon, W. E. Macey, F. Russell, M. F. Christianson, and Frank Fish.

COOPERATIVE INSTITUTIONS AND AGENCIES

Boyce Thompson Southwestern Arboretum: identification of plant specimens and donation of plants.

Donation of publications: University of Utah, University of Colorado Museum, Carnegie Institution of Washington, D. C., Department of Agriculture, Weather Bureau, California Academy of Sciences, United States Geological Survey.

CASA GRANDE CCC SIDE CAMP EDUCATIONAL PROGRAM

There being no facilities through regular channels for academic and vocational instruction for the Casa Grande CCC Side Camp, Park Naturalist King was assigned to organize this program. The program began to function January 24, 1938, with each enrollee in camp being enrolled in at least one course of a total of 16, taught on personal time by 10 staff member at the Headquarters. The total enrollment in

BRANCH OF EDUCATION (CONT.)

classes at the beginning was 74. Subjects being taught were: elementary arithmetic, English, archeology of the Southwest, shorthand, conversational Spanish, mechanical drawing, model making, and museum technique, penmanship, photography, auto repairing, cooking, general building trades, bookkeeping, typing, and plane surveying.

NOTES ON PROJECTS NOT MENTIONED ABOVE:

A soil sample from Casa Grande was sent to the University of Arizona in connection with the arboretum planting program.

Dodge secured an excellent picture of the Pauline Weaver inscription for a forthcoming issue of the "Desert" magazine. The photograph was taken at night under artificial light.

Aid was given to the project of restoring Scaled Quail to Gran Quivira, Bandelier, El Morro, and Chaco Canyon National Monuments in New Mexico.

A small collection of pottery was received from Mr. Taylor P. Gabbard, of Tempe, Arizona. This will be carried in the accessions for next month as soon as the necessary forms are executed.

Aid was given to the successful establishment of a cooperative weather bureau station at El Morro National Monument.

Arrangement was made with Jack Whitehead, botanist at the Southwestern Arboretum, to prepare a cactus specimen for the Department of the Interior Museum in Washington, D. C.

The customary game warden appointments were obtained from State Game Warden Sawtelle for Arizona personnel.

Considerable progress was made in the arboretum planting in the Headquarters residence quadrangle.

*****SWM*****

MOBILE UNIT

By Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

Since the last report, the figures for which were taken on December 15, we have been confining our operations mainly to wall capping and cleaning out the existing drainage ditches. Since there is such a great deal of wind-blown and water-carried material around Bonito neither Custodian Mac. nor I could exactly locate these existing ditches. So we spent 138 mandays cutting a ditch from the north side of the ruin to a small arroyo at the northwest and clearing away much of the accumulations of the east side of the site. It is problematical just how much help

MOBILE UNIT (CONT.)

this work will be toward draining the interior rooms but it will at least prevent water from standing against the outside walls.

The capping completed the last month is as follows:

	<u>Square yards</u>	<u>Man days</u>
Kiva C *	31	35
Kiva D *	33	43
Room 157-158	20	32
Room 159-160	17	22
Room 176	12	28
Room 286	5	7
Room 287	10	12
Room 288	5	7
Room 175	7 (cubic yards)	18
Room 228	10	14
Kiva H	18	10
Room 237	4	6
Total	<u>172</u>	<u>234</u>

This is 165 square yards of capping and seven cubic yards which were built along the face of a three story wall to act as both support and protection. A total of 234 man days were required for this work which, counting the cubic work as requiring about twice the time that the plain capping does, shows that our figures per yard are a little higher than they were last month, coming to one and a third man days per yard.

We have lots of excuses to offer for this increase in time, but I can't decide which of the best two to put forward. Either the boys are doing a better job or else the fact that the rock is getting harder to find is slowing them up and adding to the job overhead. All the men on the trucks hauling water and adobe, and gathering rock are divided evenly among the jobs.

One wall repair job is now in progress on the west wall of Room 241. This wall is one of those that held back the two stories of fill around Kiva D. The entire central section of the wall, a large triangular area, had been completely rebuilt once before, some time, apparently, before the concrete capping was put in place. This rebuilt section had been pushed far out of line, there were two gaps in it at the bottom and part of the veneer at the top had sloughed off.

Some of this work on the walls and capping is now getting up in the air. Working on the third story walls entails a lot of scaffold building and moving. So far we have been lucky or else the safety meetings are having an effect. At least we have had no accidents on the scaffolding. Our only one in two months happened when one of the boys got in a hurry to leave the job at five o'clock. He jumped off a wall and landing

on a loose rock sprained his ankle.

Mr. McPhee , public relations man for the Navajo Service, came over from window Rock and took a couple hundred feet of movie film and some still photos of the work in progress. No one objected to having his picture taken as is sometimes the case, and a fine time was had by all. The oldest man on the job, whose papers say he is 67 and who easily looks it, was even urged into a trot for the action shots. This man is a mud carrier by profession and doesn't usually appear to move at all.

We received the eighty gallons of assorted chemicals ordered for us by the Goolidge office but since I have never even heard of any of them before and neither have the Navajos, and we have no instructions as to their use, they were put in a safe place where they at least won't freeze.

After a lull when we forgot to take many "After" pictures, the photograph-pasting department of the Unit is again experiencing a business revival. Our instructions call for us to keep all five copies of the prints and job reports until the entire job is completed. However, I think that we ought to send them down to Coolidge for safe keeping. The place we are pleased to call an office is none too clean, dirt and things keep sifting down from the ceiling, and when it rains everything has to be moved continually to keep it just ahead of the new leaks that develop. Just how badly it leaks can be understood when it is known that those hardy folks, the Bob Harrises, moved out into the open spaces after spending one night in it. We are not complaining about having to work in it, not at all. We have a raincoat and a tin hat with which to deflect things that fall from the ceiling, but the papers would be much better off in a good filing cabinet.

*****SWM*****

VISITOR INFORMATION

By The Ross

As nearly as we can get the figures, we had 19,191 visitors at the Southwestern Monuments in January. This compares with 15,577 last January, and with 11,503 last month. It looks as if we are having a considerable increase over the number of winter visitors of last year.

On this number of visitors, we registered 14,065 informational contacts. That sounds like a lot of work and it really is, but there were 10,609 visitors who were not contacted. Nearly 8,000 of these unattended visitors were at White Sands and Saguaro, where at least the visitors could do little vandalism by being unattended, but we are still undermanned when we can reach only little more than half of our visitors with our information service. By shifting our present forces, we could reach a much higher percentage of visitors but such shifts would open us up to vandalism and we figure that protection should precede informa-

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VISITOR STATISTICS FOR JANUARY, 1936
SOUTHWESTERN MONUMENTS

MONUMENT	EMPLOYEES		FIELD TRIPS				MUSEUM TALKS				Unattended	Total Inform-ational Contact		Total Travel	Per cent Con-tact
	Per.Temp.	No.	Att'd	Time	Av. Att'd	Av. Time	No.	Att'd	Time	Av. Att'd	Av. Time				
Arches	1	--	--	--	--	--	--	--	--	--	--	25	--	25	--
Zaitec	1	--	112	637	3669	5.7	32.8	121	686	2708	5.7	22.3	1323	798	171
Pandelier	2	3 CCC	34	125	2105	3.6	61.9	24	87	385	3.6	16.0	212	298	
Canyon de Chelly	1	--	3	7	365	2.3	122.0	--	--	--	--	7	7	14	
Capulin Mountain	1	--	--	--	--	--	--	--	--	--	--	250	--	250	--
Casa Grande	2	3 CCC	400	4500	14287	11.2	35.7	333	3903	7739	11.7	25.2	8403	4768	176
Chaco Canyon	1	--	15	32	1680	4.1	112.0	10	39	290	3.9	29.0	101	73	
Chiricahua	1	2 CCC	81	380	4660	4.7	57.5	--	--	--	--	203	380	583	65.1
El Morro	1	--	11	49	655	4.5	53.5	7	32	555	4.6	79.3	81	81	
Elia Cliff	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Green Quivira	1	--	27	103	1850	3.8	68.5	--	--	--	--	--	103	103	
Hovenweep	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Montezuma Castle	2	--	136	441	7684	4.69	56.5	121	417	2819	4.6	23.3	858	599	143
Natural Bridges	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Navajo	--	1	2	4	300	2.00	150	--	--	--	--	--	4	4	
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	--	700	
Pipe Spring	1	--	30	87	619	2.9	27.3	--	--	--	--	64	87	151	
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Saguaro	--	--	--	--	--	--	--	--	--	--	--	3000	--	3000	
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	100	--	100	
Tonto	--	1	129	429	5195	3.3	40.27	85	328	1327	3.8	15.6	757	679	111
Umacecovi	2	--	273	1590	7840	5.8	28.7	--	--	--	--	353	1590	1943	81
Wainut Canyon	1	--	21	58	485	2.7	23.0	35	101	605	3.0	17.2	159	231	68
White Sands	2	--	--	--	--	--	--	--	--	--	--	82	--	4730	
Wupatki	--	--	--	--	--	--	--	--	--	--	--	63	--	63	
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TOTAL	20	10	1274	8472	51594	6.6	40.4	736	5593	16428	7.5	22.3	14065	19191	72
Last Month	52	8	1064	4539	37012	4.3	35.1	775	3227	15437	4.1	19.9	7868	11503	66
January, 1937			977	7528	36059	7.5	30.1	388	3158	8209	8.1	21.1	11032	15577	70.8

VISITOR INFORMATION (CONT.)

tion. As a matter of fact, we are, as usual, on the conservative side with these figures because we actually did give a great deal of information at White Sands in January but have not yet brought things to a system whereby such contacts can be tabulated and reported. By next month we hope to have such a system in effect.

Of the 14,065 informational contacts, 8,472 visitors were given field trips and 5,593 were given museum talks.

The field trips averaged 40.4 minutes as against 36.1 a year ago and 35.1 last month. There were 1,274 field trips as against 977 last year and 1,054 last month.

We gave 736 museum talks in January as against 388 a year ago and 775 last month. The museum trips averaged 22.3 minutes each as compared with 21.1 minutes last year and 19.9 last month.

Casa Grande made 148% contact out of a possible 200%; Aztec came second with 171%; Montezuma Castle third with 143%. Tonto, a one man post, did exceedingly well with its 111% out of a possible 200%. Let's you might infer that Casa Grande was overmanned, we might explain that one man, on other duty, guided practically not at all except on peak loads, the other regular employee did considerable other work aside from guide duty and the CCC boys worked only five days per week. The average was a little more than three men on duty per day.

Experiments have been carried out at Casa Grande during the month looking to superceeding form SWM 16 with a much simpler method of accounting for visitors. I know our own field men will be very glad indeed to hear this.

*****SWM*****

MORE VISITOR STATISTICS

By The Boss

Some time ago we re-arranged the museum at Casa Grande. We thought the visitor interest might be changed and that it would be reflected by a longer or shorter stay in the re-arranged museum, so we were watching the museum time with considerable interest. We had agreed that it would take three or four months to give us worthwhile figures because the boys would have to get used to the new arrangement and we wanted to get enough parties to offset minor variations. This interesting experiment, however, was ruined by changes in personnel; one of our men being transferred to another unit of the system, and a new man to this unit, though with experience elsewhere in our work, being transferred in here. In addition to this, three CCC boys were broken in for guide work. All this, of course, upset our experiment on the changed museum which was based upon the same men working in a re-vamped museum under about the same conditions as to weather, run of

VISITOR STATISTICS (CONT.)

visitors, type of visitor, etc. I might say that as far as the experiment went, which was not far enough to be conclusive, the changed museum was reflected in no particular change in visitor interest as shown by a change in visitor time in the museum.

The change of personnel gave us a chance to experiment a little in another direction and I think we have something interesting to report on that work. We thought we might find out something about the speed with which a new man can get adjusted to our work and how effective a man with no archaeological background would be in holding visitor interest.

As a control on what would be considered regular service we added the figures on one of our regular guides who had been working more than a year and found that in 33 parties handled on field trips just prior to the introduction of the new guides, he had totalled 1206 minutes, or that the average party time was 36.5 minutes in the field. Another guide, who had also been with us more than a year, with 32 parties ran a total of 1042 minutes, or an average of 32.5 minutes per party in the field. One factor which should be mentioned, but which we could not put in figures, was that Guide B during this period had to work alone much of the time which means he had to hurry his parties to the detriment of his field time which, but for this complication, would certainly have been a couple of minutes higher.

Three of our new men were CCC boys and the fourth was a regular Service employee who had a thorough background in archaeology but was new to this particular place. After a few days of training in which the new men went around with the regular guides, read some preliminary literature, etc., they were started out with their own parties. After 87, 91, 65, and 39 parties had been handled by these respective guides, we checked up their various times and found they had averaged 28.0, 29.2, 28.2, and 33.7 minutes respectively. The 33.7 average was turned in, of course, by the regular employee who had the background and had only to adapt his knowledge to this particular job. Control A and B had run an average of 36.5 and 32.4 respectively and as we explained, Control B was probably two minutes low, due to causes beyond his control. We find, then, that Guide 4, after 39 parties, is holding his visitor interest within a minute or two of the normal period.

In Museum trips we find almost a precisely parallel situation. Control A, in 19 museum trips averaged 23.4 minutes. Control B, in 22 trips averaged 15.8. Control B was under pressure much of this time, by having to work alone and should be credited with a higher average, probably around 20 minutes, which he would have maintained if he had sufficient help. We now find that the guides had 76, 75, 52, and 47 parties respectively and averaged 16.7, 17.9, 18.9, and 23.9 minutes respectively; the last average being that of the regular employee with the archaeological background who has quickly adapted

VISITOR STATISTICS (CONT.)

himself to the new work and is turning in an average along with that of Control A.

It was at this point that we figured up all trips and averages and had a general talk over the situation expressing our desire to find out if the boys could maintain a higher visitor interest, reflected by a slightly longer visitor stay, by putting out a little more effort.

After another run of field trips, of 56, 41, 49, and 29 trips respectively, our guides turned in averages of 34.0, 33.3, 32.0, and 37.8 minutes per party. This means that the guides had lengthened their trips 6.0, 4.1, 3.8, and 4.1 minutes respectively in a rather short series of trips. We expected the three new guides to be able to hold visitor interest much better when they had their own interest in doing so aroused; also, they were acquiring more background day by day, thus the better enabling them to hold visitor interest. The most surprising thing, and no one was more surprised than the man himself, was that Guide Four, the regular employee who had the background and was at home with ruins, should increase his visitor interest in practically the same proportion as the new men.

The museum trips showed a parallel increase. After 39, 27, 38, and 48 trips respectively, the guides averaged 22.0, 22.7, 23.0, and 30.5 respectively. This shows a gain in visitor interest of 5.3, 5.2, 4.1, and 6.6 minutes respectively and here again the regular employee has made a proportional increase along with the new men. The new men are now checking along with Control A while Guide Four is seven minutes ahead of Control A.

I am fast coming around to the theory that if you want to build up visitor interest in your museum as reflected by an increasing time spent there, you can get a ten percent increase in an infinitely shorter time and at no additional expense by working with your guides, whereas I question if you can get a five per cent increase by spending a thousand dollars in working over your museum.

We have always considered a 55 minute trip at Casa Grande as about a standard trip with 45 minutes as a short trip and 65 minutes as a long trip; a trip in this sense being a combination of the standard field and museum trips. Control A, with 36.5 minutes in the field and 23.4 minutes in the museum totals 59.9 for the complete trip. Control B, who, as we have explained, was working alone part of the time and had to cut his trip time badly, totalled 48.3 minutes. At the end of the first month on the job, the four guides were doing 56, 56, 55, and 68.3 respectively; in other words, the three CCC boys at the end of their first month are hitting the standard guiding time at Casa Grande right on the nose while our regular employee who has been transferred in, and who has an archaeological background, has adapted himself to the new job and is knocking the high average of 65 minutes for a row of loops!

VISITOR STATISTICS (CONT.)

What does all this mean?

BEFORE AND AFTER CHECK-UP ON FIELD TRIPS

FIELD TRIPS BEFORE				:	FIELD TRIPS AFTER			
No.	Minutes	Average			No.	Minutes	Average	Gain
Control A---	33	1206	36.5	:				
Control B---	32	1042	32.5	:				
Guide 1-----	87	2437	28.0	:	56	1306	34.0	6.0
Guide 2-----	91	2665	29.2	:	41	1368	33.3	4.1
Guide 3-----	65	1836	28.2	:	49	1569	32.0	3.8
Guide 4-----	39	1324	33.7	:	29	1097	37.8	4.1

BEFORE AND AFTER CHECK-UP ON MUSEUM TRIPS.

MUSEUM TRIPS BEFORE				:	MUSEUM TRIPS AFTER				%
No.	Minutes	Average			No.	Minutes	Average	Gain	
Control A---	19	445	23.4	:					
Control B---	22	349	15.8	:					
Guide 1-----	76	1276	16.7	:	39	860	22.0	5.3	
Guide 2-----	75	1348	17.9	:	27	613	22.7	5.2	
Guide 3-----	52	984	18.9	:	38	874	23.0	4.1	
Guide 4-----	47	1124	23.9	:	48	1467	30.5	6.6	

*****SWM*****

CASA GRANDE JANUARY GUIDE STATISTICS

By The Ross

At Casa Grande, in the month of January, we checked 4,509 persons through the ruins and 3,903 through the museum. These people were handled in 400 field parties and 333 museum parties. This makes the average party about 11 persons, which would make a nice party if they were all that size. The trouble is that, since most of our parties run much lower than that, it means we had to handle parties of 50 and 60 at the peak loads in order to get the average of 11. As a matter of fact, we did handle a maximum party of 81, which is far too large for good service.

These figures deal with the guides and not very much with parties. There were seven guides doing more or less work during the month. The names are Rodgers, Coyle, Baldwin, Cocks, Savage, Jones, and Bicknell. Custodian Bicknell was busy all month on other work and his only guiding was in the nature of pinch hitting on Sundays and during noon hours. He handled 12 field trips and 4 museum trips; 250 persons in the field and 76 in the museum. His parties, being oversize, an average of 21 in the field and 19 in the museum, tell you he was pinch hitting and the traffic piled up on him. The figures are therefore worthless as showing the ability of the guide; he was working with only a few parties and handling those under abnormal conditions, such as noon hours, Sunday peaks, etc.

Jones was doing other work part of the time; working up the data

CASA GRANDE GUIDE STATISTICS (CONT.)

for a desert trail, etc. and did not handle a full share of the visitors. He helped out on Sundays and peak loads which would tend to give him a large average party. We find he has a larger average party both in the ruins and museum than anyone else except Biemell, whose figures were distorted by a party in the ruins. Factors which influenced Jones' totals. Jones handled 45 field parties in 21 days where the three men who guided regularly handled 150 or more field parties in a less number of days. Jones, then, was not under regular guiding conditions and in addition to his large number in party being charged to this, we will have to charge a little of his trip time, for increasing the number slows down the party. He has nearly 41 minutes in his field trips. This distortion shows up clearer in Biemell's field time of 46.5 minutes.

Cocks worked only five days in which he handled 18 ruins trips and 13 museum trips. Cocks was a CCC boy with several weeks of training and did about his average, 37 minutes in the ruins and 19.2 in the museum, a total of 56.2 for the average round trip. Anything above 55 minutes can be called satisfactory time.

Cocks then quit and Savage went in. After his breaking-in period of several days, Savage handled parties for five days in which he took 16 parties through the ruins and the same number through the museum. His time averaged 29 minutes in the ruins and 16.8 minutes in the museum, making a round trip time of 45.8. This is not a bad total for a beginner with as little experience as Savage had and he will undoubtedly raise the time next month.

Baldwin, another CCC boy, handled 107 field trips in 20 days, which averages out as the largest number per working day handled by any guide. His time is a little lower than the others, both in the ruins and the museum. His average ruins trip was 31.6 minutes and his museum time was 21.3, a total round trip time of 52.9.

Coyle, another CCC boy, with a little longer experience, turns in 107 field trips and 90 museum trips in 24 working days. His field trips average 34.4 minutes and his museum trips, 23.2, or a total round trip of 57.6 minutes.

Rodgers, another CCC boy, has an average of 38.7 minutes for 100 field trips and 23.2 for 82 museum trips, an average round trip time of 61.9 minutes, a very good time indeed.

*****SWM*****

THE S Supplement

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MONTHLY REPORT

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ORIGIN OF THE TERM "AZTEC RUINS"

By Art. Woodward

To the layman, the name Aztec signifies a definite connection with the ancient Nahuatl people of Mexico and it is difficult to explain away the fact that the Aztec Ruins National Monument is in no way connected with those "Romans of the New World".

"How did the ruins get that name?" is frequently asked.

The answer must be: white men who didn't know one Indian tribe from another and thought that all Indians who built stone houses must in some manner be related to those almost legendary people in Mexico, gave the name to the ruins.

"But when?"

And there the one who is being questioned must say, "Well, I don't exactly know but it must have been sometime after the first American settlers began to come into the Animas Valley, probably in the 1870 decade.

In the following quotation, one early date for referring to the ruins as being of Aztec origin is at least definitely pinned down. Whether all subsequent references came from the gentleman in question is open to debate but, at least, we have a starting point. If anyone knows of an earlier reference to the naming of Aztec Ruins, it would be interesting to hear from him.

The ruins were first noted, but not named, upon the map prepared by Don Bernardo de Miera y Pacheco for the Escalante Expedition in 1775.

On August 4, 1859, J. S. Newberry visited the ruins and described them for the first time but did not name them.

Lewis H. Morgan was there in July, 1878. Tentative digging in the ruins is said to have been begun by settlers who carted away building stone about 1876. The first actual attempts to make any excavations were carried out in 1882. Ten years later Warren K. Moorehead made an examination of these ruins. He wrote a little-known report, a serial, entitled "In Search of a Lost Race", profusely illustrated with photographs, maps, and sketches of many archeological sites in the Southwest. Publication of this began in "The Illustrated American", April 2, 1892, and terminated August 20, 1892.

Later, of course, the American Museum of Natural History tackled the problem of making a thorough excavation of the ruins, a report of

which Earl Morris has given to students in a series of monographs of the Anthropological Papers of the American Museum of Natural History.

However, to revert to the item which may be responsible for attaching the name to the ruins: On February 16, 1861, one Charles Baker, then residing in Animas City, County of San Juan, New Mexico, wrote to the Surveyor General of New Mexico concerning that part of the country.

He stated: "The valleys of the Rio de las Animas and San Juan are strewn with the ruins of cities, many of them of solid masonry. Stone buildings three stories high are yet standing, of Aztec architecture. An immense and prosperous population has at some former period resided here, and but few localities are capable of sustaining a more numerous one...."

This was published in the "California Farmer", June 19, 1863.

*****SWM*****

STABILIZATION OF THE KIVA IN THE GREAT CEREMONIAL CAVE AT BANDELIER

By J.W.Hendron

(Note: The original report with photographs is on file and available for reference at the Southwestern Monuments Headquarters Library, Coolidge, Arizona.)

Of all the archeological features in Bandelier National Monument, the "Ceremonial Cave" which lies near the upper end of the cliff dwellings in Frijoles Canyon is among the most interesting.

It is situated high in the face of the cliff just opposite the upper pueblo. The cave is entered with considerable difficulty, all vestiges of its ancient entrance having disappeared. The cave has contained several rooms built against the wall, and back of these were excavated rooms. In the bottom of the cave was a kiva excavated in the rock floor. This we cleared of its accumulated debris, finding numerous interesting articles well preserved because of their protection from the elements. This is one of the few ceremonial caves found in this region. One long known to us is that called "La Cueva Pintada," or the Painted Cave, in the northern wall of the Canada de la Cuesta Colorada. This cave has its walls covered with pictographs painted in red, white, and black. The ceremonial cave at the Rito has some features in common with

the Painted Cave, but contains no wall paintings.*

The great cave is 150 feet above the water of the creek. Mr. Jesse L. Nusbaum made it accessible by the building of about 90 feet of ladders and 200 feet of rock trail and stairway. The first ladder, 25 feet in length, is placed at some distance to the left of the cave. By means of this, a level is reached along which, by the cutting of a trail in the rock and the building of strong hand-rails and a stairway mounting to a height of another 25 feet, the landing is reached upon which is placed the second ladder. This is 40 feet in length and leads to another landing along which a trail is built to the foot of the upper ladder. This is 25 feet long and reaches a point from which a path has been constructed to the floor of the cave, 30 feet above.**

During the summer of 1910, work was continued on the small kiva previously mentioned, under the direction of Mr. Nusbaum, who at that time was a member of the School staff.*** It consisted of a reconstruction in part of the wall and the reconstruction of the roof.

The building stones of soft volcanic material had fallen from the top of the wall on the west and southwest portions between the time of abandonment of the cave and the time of excavation of the kiva in 1908. Mr. Nusbaum built the wall up to an equal level and then proceeded with the reconstruction of the roof.

The kiva is an exceptionally small one, varying in diameter from 12.1 feet to 13.9 feet, the diameter being a little greater at the upper part of the wall at the height where the main vigas were set in. The roof construction consisted of only three main vigas of Ponderosa Pine approximately six inches in diameter, and long enough to extend through the walls for several inches. Across these were nailed vigas or poles of pine varying from two to four inches in diameter with the bark left on. They were laid northwest to southeast. Pine needles and juniper boughs were laid over the poles and were followed by several thicknesses of the Denver Post, dated August 23, 1910, and addressed to Jesse L. Nusbaum. Over this were placed additional pine boughs, and on top a coating of dirt several inches thick. The final course of rock around the top was apparently laid on without mortar.

The entrance or central opening was built in the southwest portion

*Hewett, Edgar L.: The Excavations at Tyuonyi, New Mexico, in 1908, Papers of the School of American Archaeology, Archaeological Institute of America, No. 5, p. 448-449

**Hewett, Edgar L.: The Excavations at El Rito de Los Frijoles in 1909, Papers of The School of American Archaeology, Archaeological Institute of America, No. 10, P. 664-665.

***Organic Acts and Administrative Reports of the School of American Archaeology, Archaeological Institute of America, Santa Fe, New Mexico, N.S., Paper No. 6, 1907-1917, p. 93

of the roof and consisted of short lengths of pine notched at the ends, which were preserved sufficiently for use a second time. The entrance was large, being as long as the distance between two of the main vigas to which the framework of the entrance was nailed, and no more than three feet wide. A ladder approximately 30 feet long was placed through the opening, the side pieces resting directly in front of the firebox where the floor of the kiva had been worn down, evidently from the constant scraping of feet.

Although the main vigas and some of the poles were in fair shape due to the protection received from the ceiling of the cave, it was thought advisable to remove the entire roof. Some of the earth from the roof had fallen to the inside of the structure as a result of the disintegration of the pine needles, juniper boughs, and newspaper, leaving wide gaps between the poles. This was dangerous to the welfare of visitors walking on the roof as well as being an appalling sight. After the roof was removed, six or eight inches of accumulated debris was cleaned from the floor.

Portions of the inside wall showed the effects of the weather, the thick coating of plaster having fallen away, particularly in the west portion, leaving the building stones in plain sight. The mortar had washed from between some of the large building stones and some of the small wedges of tuff had fallen out, leaving the main wall in a weakened state. The method of construction here parallels that of other archeological types in the canyon, the chinking technique being exactly the same. It was necessary to repair these breaks in order to renew the original strength and to keep the wall from falling to the inside.

The wall construction of this chamber is similar to that of the large kiva which has recently been stabilized. The building blocks for the main wall were evenly laid with the smooth sides to the inside of the kiva, while the building blocks which thickened the wall to the outside were haphazardly laid in mud mortar. This condition was evidenced by imprints in the original mortar from which the retaining blocks had fallen. Apparently the retaining wall was heavier on the south and southwest sides due to the fact that the floor of the cave sloped in those directions, but was not present on the northeast side, or at least no evidence of it was found. The south and southwest portions were subject to the weakness of the talus slope while the opposite portion was protected by the ceiling of the cave itself. A shallow trench not more than 18 inches deep, and not more than two feet wide was dug around the northeast portion of the wall of the kiva, and crude stones both large and small were laid in cement next to the thin inside wall, which under ordinary conditions will not give to the outside. The stones laid up on the outside may keep it from falling to the inside. The other half of the wall seemed to be the greatest problem, and I have mentioned before that the building blocks which acted as a retainer had fallen down the talus slope leaving that entire part of the structure bare. A good

KIVA STABILIZATION GREAT CEREMONIAL CAVE AT BANDELIER (CONT.)

portion of the main wall itself had fallen away and many of the blocks were so loose that their removal was necessary. A retaining wall varying from one to three feet in width at the ground level had to be built up with rocks and cement in order to hold the original wall. It extends little better than halfway around the entire structure, beginning in the north portion where it is about one foot wide and widening to approximately three feet at its base on the south side, then narrowing down again as it reaches the southeast section. The explanation for the extreme thickness in the south portion is due to the fact that more erosion has taken place at this point and has left four feet of the inside wall standing unprotected. The thickness of the retaining wall at the time of occupation of the cave may have been somewhat different than the present reconstruction, but from a stabilization standpoint it was necessary to gain this width at the base to hold up the inside wall. Of course, there is no doubt but what it might have stood for some time, but it was thought wiser to insure its standing for a longer period of time. I do not think that this reconstruction of the retaining wall departs too much from the original type since the erosion process had played such an active part in the front of the cave.

The circular wall of the shaft of the ventilator had to be extended upward as the retaining wall was being built and it is at this point that the retaining wall widens. The outside opening of the shaft now stands little better than three feet above the present ground level. How much higher the original was extended is not known. The shaft on the inside was in an extremely weakened state due to the fact that the supporting building blocks under the lintel were not of sufficient size to withstand the pressure of the kiva wall. The mortar from between these small chunks of tuff had come loose and the right side of the lintel, literally speaking, was hanging in midair. It was necessary to take off the pressure by raising the lintel a very little with a screw jack. The old mortar was scraped from the joint and then filled with cement and a building block was worked to fit the space. Perhaps the best procedure in this particular case would have been to tear out the entire wall above the ventilator and reconstruct it, but this would have taken away from its archeological value.

Making a comparison as to the nature of the structure by means of a photograph taken 29 years ago, it seems that the loose portion of the inside wall which had to be reconstructed was the same part which was rebuilt 27 years ago. The west portion of the wall was in extremely bad condition, more so than any other part. It is not known what method the original inhabitants used in mixing their mortar, but it appeared to be a clay mixed with a coarser material. This is the best mortar that I have yet seen in any of the ruined structures in the canyon and was much stronger than that of the previously restored portion, the mortar of which was nothing more than a powder.

Three new main vigas of pine were laid over the wall and set into

the building stones, and then cemented into a course of building stone laid up to the level of the tops of the vigas. Vigas or poles of pine approximately three inches in diameter were laid across the main vigas and nailed. The ends laid an inch or so over the wall but were flattened on the top so that additional courses of building stone could be laid over them, and cemented to the wall. Small willow branches were laid across the poles and nailed, and then 2 x 4's and then wet down. This was followed by small chunks of tuff thrown into the grass which would serve to hold the layer of mud together. The mud was not just poured on, but was worked down into all the cracks and leveled off to the tops of the 2 x 4's. When the mud had dried, it was mopped over with hot tar. Strips of tar paper were cut to fit and laid over the tar while it was still warm, the edges of the paper being flashed into the wall. The edges of the paper which overlapped were sealed with tar and then a final coating of tar was mopped over the entire roof. This was followed by a final course of building stone which may be called a parapet wall, and a flashing of cement was brought down from the wall to the roofing paper. The edges of the paper were nailed to the framework of the central opening which is in the southwest portion of the roof and, to seal these edges tight, tar was poured to cover them. Then a flashing of cement was brought down from the framework over the tar paper on all four sides. After the cement had set, a layer of mud two inches thick was spread over the top, and then followed by a coating of loose earth.

A canal or drain for the roof was cut from pine and built into the southwest portion of the wall. A final coating of mud was put over the outside of the structure to give it a more natural appearance.

Little is known as to the exact style of roof used by the prehistoric inhabitants of Bandelier National Monument, but certainly there must have been several styles, some elaborate and others just mere shelters from the weather. The type discussed in this paper follows the style of the one removed, which in all probability was reproduced under the supervision and guidance of Indians from the neighboring pueblos.

Due to the fact that this little kiva is sheltered somewhat by the ceiling of the cave itself, it would be very difficult to estimate the life of its roof. If we use the first reconstructed roof as a criterion, which after 27 years of weathering would hold the weight of a man, and then take into consideration the amount of material and methods used in building the present roof, we may be well assured of its holding up for a much longer period of time.

*****SWM*****

RESEARCH PROJECTS IN THE SOUTHWESTERN MONUMENTS

Compiled by Dale S. King

In preparing a report listing research projects in the Southwestern Monuments under the auspices of the Civil Works Administration; the Federal Emergency Relief Administration, and the Works Progress Administration, the following bibliography was assembled. It is printed here for the purpose of record.

Rensch, H. E. "Chronology for Tumacacori National Monument." 1934.

Available from National Park Service, Western Museum Laboratories, University of California, Berkeley, California. 84 pages. Mimeographed chronology with 37 bibliographical references.

Beals, Ralph L. "Material Culture of the Pima, Papago, and Western Apache." 1934. Available from National Park Service, Western Museum Laboratories, University of California, Berkeley, California. 45 pages. Mimeographed compilation of selected material, with 6 $\frac{1}{2}$ pages of bibliography.

Beals, Ralph L. "Preliminary Report on the Ethnography of the Southwest." Available from National Park Service, Western Museum Laboratories, University of California, Berkeley, California. 75 pages with an additional 38 pages of bibliography. Mimeographed compilation of selected material.

Colton, Harold S.; King, Dale S.; Steen, Charlie R.; and Harris, Robert S. "Report on Nalakihi, A Prehistoric Ruin on Wupatki National Monument, F-68 CWA Work Project No. 4". April 12, 1934. Present location: Museum of Northern Arizona at Flagstaff, Arizona; Bureau of American Ethnology; National Park Service files in Washington. 169 pages and 2 folded maps. (a) Typed field notes, photographs, and drawings of excavations of small pueblo ruin; (b) report of archeological survey of 20 quarter sections in northern portion of Wupatki National Monument; (c) report of engineer on same survey. At present in preparation by Dale S. King for publication, probably by Museum of Northern Arizona. The dendrochronological material of the excavation was published by McGregor, J. C., "Dates from Tsegi and Nalakihi," Tree Ring Bulletin, Tucson, Arizona. October, 1936, page 15.

Colton, Harold S.; Hargrave, Lyndon Lane; Brewer, J. W., Jr.; Williamson, Ten Broeck; Van Valkenburgh, Richard; and Metz, J. C. Fisher. "Scientific Report on Excavation of Wupatki, F-68 CWA Work Project 10, Wupatki National Monument." April, 1934. Present location: Museum

RESEARCH PROJECTS IN SOUTHWESTERN MONUMENTS (CONT.)

of Northern Arizona at Flagstaff, Arizona; Bureau of American Ethnology; National Park Service files in Washington; Southwestern Monuments Loan Library, Coolidge, Arizona. 134 pages and 3 maps. Typed field notes, photographs, and drawings of excavation of large Pueblo ruin. Pertinent facts will be published by the Museum of Northern Arizona with issuance of their research work on Pueblo III culture period, it is believed.

Vivian, Gordon. "Final Report, Archeological Reconnaissance under CWA, Chaco Canyon National Monument." May 12, 1934. Copies available at Chaco Canyon National Monument Library, Southwestern Monuments Loan Library, Bureau of American Ethnology, and National Park Service files in Washington. 26 pages. Mimeographed notes of methods used and facts discovered in studies of wall disintegration in ruins, topographical map of Chettro Kettle ruins area, and petroglyph survey.

Hastings, Russell. "Report of Archeological Excavations at Casa Grande National Monument under CWA Program, 1934." March 22, 1934. Copies in National Park Service files in Washington, Southwestern Monuments Loan Library, and probably the Bureau of American Ethnology. 5 pages. Brief mimeographed report summarizing architectural types, superposition, features, artifacts, burials, and conclusions of excavation of Hohokam pithouses.

Caywood, Louis R., and Spicer, Edward H. "Tuzigoot, the Excavation and Repair of a Ruin in the Verde Valley near Clarkdale, Arizona." July, 1935. Copies may be obtained from the authors or from the National Park Service, Western Museum Laboratories, University of California, Berkeley, California. There are loan copies in the Southwestern Monuments Loan Library. 119 pages, 18 photolithoprinted plates. Mimeographed scientific report describing architecture, artifacts, burials, conclusions and discussion of excavation of a Pueblo site. (Note: Tuzigoot is not yet a national monument; but its proclamation is expected at any time. Therefore, this report should be included in any compilation. The work at Tuzigoot was largely done by CWA, FERA, and WPA.)

Beaubien, Paul L. "Excavations (WPA) at Tumacacori, 1934." March 31, 1937. Was contained in the Supplement to the Southwestern Monuments Monthly Report for March, 1937. Copies are on file at the Southwestern Monuments Loan Library, the National Park Service files in Washington, and the Tumacacori National Monument Library. 46 mimeographed pages and one printed folded map. Eight mimeographed plates. This mimeographed report is abridged from the original typewritten report which is on file at the Southwestern Monuments Loan Library. The original report includes more than 100 photographs and six large maps and drawings. Subject matter covers the wall-outlining excavations done at Tumacacori during 1934. It is hoped that the original report can be published with private funds within the next two years.

ANTHROPOLOGICAL GLOSSARY

(Ed. Note: We owe our thanks to Professor George P. Murdock of Yale University for the following material. It was included in a course on general ethnology which was taken by Park Naturalist Dale S. King while on educational furlough during the winter of 1936-1937.)

Acanthion -- Point of the anterior nasal spine.

Acculturation -- Assumption of culture through contact. (Diffusion is just different way of looking at same process - bird's-eye point of view as were looking down on map. Actually is from point of view of the borrowing tribe. Acculturation as specific term applies to impact of western civilization on native peoples.

Adhesion -- Taylor's term. The union of elements in a culture complex.

Adz (e) -- A cutting tool, primarily for wood working; with blade roughly at right angles and perpendicular or slanting to handle.

Affine -- A relative by marriage, an "in-law".

Age -- area concept -- Theory that extent of distribution of a trait is directly proportioned to its age.

Age -- grade - A tribal sub-group wherein membership and promotion are dependent upon age.

Agglutination -- Linguistic -- Formation of words by adding prefixes, infixes, and suffixes to roots.

Agnate -- A patrilineal relative.

Aleatory element -- Element of luck, chance, accident (Sumner's term. Particularly in regard to religion -- situation wherein man must adjust). Floods, disease.

Alinement (Alignment) -- Upright megalithic stones arranged in parallel rows.

Ambil-anak -- Under patrilineal condition an exceptional form of marriage characterized by absence of bride price, by matrilocal residence, and by matrilineal descent (when father has no sons, but daughters, her children carry on line).

Amitate -- Lowie's term -- Special relationship with paternal aunt. Parallel to avunculate.

Amok -- Frenzied desire, institutionalized among Malays, to kill every person encountered.

Amulet -- Object worn as protection against evil.

Androcracy - System of male authority.

Angakok - Eskimo shaman.

Animatism -- Marat's term -- Attribution to things of life and power but not of a soul.

Asimism -- Tylor -- Attribution of souls to things.

Anthropometry -- Science of measurement of human body.

Archeology - Study of material remains of ancient or prehistoric peoples.

Areoi -- A Tahitian society characterized by promiscuity and

infanticide.

Artifact -- A material object fashioned by human workmanship.

Assagai -- Iron-tipped throwing and thrusting spear of Bantu.

Atlatl -- Spear thrower.

Aury -- Art or practice of foretelling events by auspices or omens.

Avatar -- Incarnation, especially of a god, as a man or animal.

Avunculate -- A special relationship with the maternal uncle. Especially where he exercises domestic authority and the nephew inherits from him or succeeds him.

Awl -- Pointed implement for piercing holes.

Babiche -- Thong of skin, especially eel skin.

Balsa -- A raft or boat constructed of reeds lashed together in bundles.

Band -- A tribal sub-group united not by kinship ties but by living together under nomadic or semi-nomadic conditions.

Banner-stone -- A prehistoric North American artifact of problematical use, made of polished stone with two symmetrical wings extending laterally from a perforated axis.

Bark Cloth -- Fabric made by beating inner bark of certain trees.

Barrow -- Earthen mound, usually covering a grave.

Basion -- Median point in the anterior margin of the foramen magnum.

Batik -- An Indonesian method of executing designs and colors by protecting portions of the fabric by wax before dipping in the dyestuff, then removing the wax by boiling.

Beena -- **Matrilocal**, matripotestal marriage occurring as an exceptional form in India.

Bell-beaker -- A pottery vessel shaped like an inverted bell.

Berdache -- A person who dresses like and lives the life of the opposite sex.

Betel -- A species of pepper; leaves and nuts chewed with lime by natives of Indonesia.

Bezoar -- Stone concretion found in the digestive tract of certain animals and often used as a medicine or fetish.

Blood brotherhood -- An artificial relationship usually established by a ceremony of drawing, exchanging, or mixing blood. Especially common in Africa.

Blood vengeance -- Obligatory practice of avenging with death the slaying of a kinsman.

Blowgun (blowpipe) -- A hollow tube through which darts are propelled by breath of operator.

Boat Stone -- A prehistoric American artifact of pottery stone, shaped somewhat like a boat.

Bola (bolas) -- Implement consisting of one or more weighted cords which, when thrown, entangle the quarry.

Bonze -- A Buddhist monk or priest.

Boomerang -- A curved and flattened throwing club, especially one which when thrown describes evolutions in air, returns to vicinity of thrower.

Bow-drill -- A drill operated by a bow and string.

ANTHROPOLOGICAL GLOSSARY (CONT.)

- Brachiation -- Arboreal locomotion by swinging from the arms.
- Brachycephalic -- Possessing a relatively broad head with cephalic index of 81-2 or above.
- Brachycranial -- Possessing a relatively broad skull with cranial index of 80 or above.
- Brand-tillage -- Rude agriculture on land from which the brush has been burned off.
- Brass -- Copper and zinc alloy.
- Bregma -- Point of junction of coronal and sagittal sutures.
- Bride-price -- Payment or gift by groom or his group to father or group of the bride.
- Bride-snow -- Exhibition of bride often to enhance bride price or to collect a dowry.
- Bronze -- An alloy of copper and tin.
- Bull-boat -- A type of skin boat, especially the Plains type of bison hide over frame.
- Bullock -- A castrated bull -- an ox.
- Bullroarer -- An elongated slat of wood whirled at the end of a cord to produce a roaring sound.
- Bundling -- Practice of courtship in bed. Particularly in early New England.
- Busk -- An annual harvest ceremony of Southeastern Indians, (Creeks) with purification and new fire rites.
- Cacique -- Chief among central and southern American Indians.
- Cairn -- Mound of stones or rubble.
- Calabash -- A gourd or utensil made from the dried shell thereof.
- Camp-circle -- Originally of Plains Indians camp. Each band or sib has its special place in the circle.
- Carabao -- East Indian water buffalo.
- Cardinal Point Concept -- Attribution of ritual significance to north, south, east, west, and sometimes to zenith, nadir, and middle, by tribes of Mexico and Southwest.
- Cartouche -- An oval or oblong figure on Egyptian monument containing sovereign's name.
- Caschrom -- A foot plow (Celtic term).
- Cassava -- Manioc plant or the starch made from its root stalk.
- Catamaran -- Vessel with two parallel hulls joined by light framework supporting a mast and sail.
- Caul -- A portion of the amnion which sometimes covers the head of a child at birth and often regarded as lucky.
- Celt -- A chisel- or axe-shaped stone implement.
- Cenotaph -- An empty tomb of a person buried elsewhere.
- Ceramics -- Pottery or the art of manufacturing it.
- Charivari -- Mock serenade of discordant noises.
- Checkerwork -- Technique in basketry in which warp and weft are similar and pass alternately over and under one another.
- Chthonian -- Pertaining to gods of the underworld.
- Churinga -- An elongated fetish object of stone or wood among Central Australian tribes.

- Cicatrization -- Formation of scars by gashing the skin.
- Cicisbeism -- Possession of married woman by recognized lover.
- Parallel to concubinage.
- Cire-perdue -- Process of casting in which molten metal is poured into a pottery mold made by covering a wax model or object by clay and applying heat to melt wax and bake clay.
- Cist -- A sepulchral chest or chamber.
- Clan -- Unilateral exogamous kin-group, especially matrilineal.
- Classification System -- System of relationships in which terms apply not to individuals but to groups of persons.
- Click -- An inspired clicking consonant. Particularly among South Africans.
- Coca -- A shrub (erythrox) leaves of which, containing cocaine as an active principle, are chewed as stimulant by South Americans.
- Codex -- An ancient manuscript.
- Cognate -- Relatives by blood, especially in female kin.
- Coif -- Close fitting cap worn by medieval woman to conceal hair.
- Coiled Basketry -- Technique in which weft is sewed through holes in a coiled or spiral warp.
- Composite-bow -- Bow built by lashing together several pieces of bone, horn, or wood.
- Concubintancy -- System in which persons are born into marriage-ability with each other. Australian and Melanesia.
- Condyle -- An articular prominence on a bone. Example - lower jaw.
- Confarriation -- Ancient Roman form of marriage in which the bride shared a cake of spelt with groom and was initiated into worship of his household gods.
- Contagious magic -- Frazer -- Magic based on principle that things in contact continue to influence each other when separated.
- Convergence -- Independent development in different regions of similar culture traits from dissimilar origins.
- Coracle -- Small boat of skin stretched over wicker frame. Irish.
- Corbel arch -- A masonry span made by advancing successive courses until the top ones can be joined by cap-stone.
- Corn-spirit -- Frazer -- Spirit personifying the life force of growing grain with which it flourishes and dies.
- Corroboree -- Ceremony among Australian aborigines.
- Counting coup -- Prestige-bringing military exploit among Plains Indians, notably being the first to touch an enemy.
- Coup de poing -- Whipped hand axe of lower Paleolithic man in Europe.
- Coovade -- Actual simulation of childbirth by its father as well as less striking practices of taboos observed by him during or after birth of the child.
- Craniometry -- Science or technique of measurement of skulls.
- Crannog -- A prehistoric fortification in a lake or marsh, built of earth or stone reinforced by piles.
- Creole -- A person of French or Spanish descent born and bred in a colony.
- Crest -- Totemic devices usually representing animals associated with

sibs and widely used in decorative art on Northwest Coast.

Cromlech -- A circle of monoliths.

Cross-cousin -- A father's sister's or mother's brother's child outside of one's sib.

Cubit -- Unit of length originally measured from elbow to tip of middle finger.

Cult -- Objective behavioristic aspects of religion.

Cultural threshold -- W. B. Wallace -- Level of culture necessary before a trait can be borrowed.

Culture Area (Wissler) -- A geographical area in which the cultures conform to one general type.

Culture trait -- Unit of culture, i.e. an artifact or folk-way.

Cuneiform -- Wedge-shaped, especially with reference to ancient Babylonian writing.

Cupping -- Blood-letting by forming vacuum over the skin.

Curare -- South American dart and arrow poison.

Cymotrichous -- Characterized by wavy or curly hair.

Daimon -- Spirit or god, that is, a supernatural being who cannot be identified with soul of individual human being.

Deadfall -- Trap so constructed that a weight falls on the animal.

Demography -- Description, especially statistical, study of a population, quantitative.

Dendrochronology -- Dating of prehistoric sites by comparison of their timbers with a chronological sequence of tree rings established for the area.

Dentalia -- Tapering tubular shells of a clam or marine mollusk, used as a standard of value by many Pacific tribes of North America.

Deodand -- Thing forfeited to God or the Crown because it has been the immediate cause of death of a person.

Dervish -- Member of one of several ascetic moslem monastic orders.

Descent -- Rule regulating membership in an unilateral kin group.

Diffusion -- Spread of culture traits by borrowing or migration.

Distaff -- Staff supporting the fiber in spinning.

Divination -- Practices aimed at foretelling future events.

Dolichocephalic -- Head with cephalic index less than 76-77.

Dolichocranial -- Skull with cranial index less than 75.

Dolmen -- Three or more upright stones supporting a cap stone or table.

Doors of the Dead (Frazer) -- Special apertures made in a dwelling through which to remove a corpse.

Dower -- A widow's share or interest in property of her deceased husband.

Dowry -- Property brought by wife to husband in marriage.

Druid -- Ancient Celtic priest or shaman.

Dualism -- Religious doctrine that universe is under dominance of two opposing principles or pantheons, one good, the other evil, as in Zoroastrianism.

Dual organization -- Primary division of a tribe into two halves or moieties.

Duk-duk -- A secret society in the Bismarek Archipelago.

Dumb barter (silent barter) -- Primitive form of exchange in which parties do not commit a contact, each depositing its goods and withdrawing while the others leave the equivalent.

Dysteleology - Vestigial or seemingly useless organ or study of such organs.

Eidolism -- Doctrine of disembodied souls or ghosts (Sumner and Keller).

Endocannibalism (Steinmetz) -- Eating of fellow tribesmen.

Endogamy -- Rule prohibiting marriage outside of one's social group.

Eolith -- Rude chipped implement of Eolithic Period.

Epicanthic -- Pertaining to the epicanthus or Mongolian eye fold.

Eponym -- A mystical or historical person from whom a clan or other social group derives its name.

Equinox -- One of the two dates each year (about March 21 and September 22) when sun appears to cross the equator.

Ethical dualism -- Possession of one code of ethics for the in-group and another with reference to outsiders.

Ethnocentrism -- Believe in superiority of one's own group and its ways combined with contempt for outsider and his ways.

Ethnography - Descriptive study of primitive cultures.

Ethnology -- Comparative study of primitive cultures.

Euphemism -- Substitution of an inoffensive word or phrase for one that is unpleasant, indelicate, or taboo.

Evil eye -- The envious glance of certain persons or spirits radiating evil influence.

Exogamy -- Rule prohibiting marriage with same social group.

Exorcism -- Practices designed to expell or banish evil spirits.

External soul -- Soul thought to reside in animal, plant, or other object external to its own body.

Exuvial Magic -- Magic worked with discarded parts of body: hair, nails, excreta.

Father-right -- Type of social organization characterized by all or most of the following: patrilocal residence, paternal authority, and patrilineal descent, inheritance, and succession.

Felt -- A fabric of matted work and hair made not by weaving but by rolling and beating.

Fetish -- An animate or inanimate object in which an alien spirit resides.

Fibula -- (a) Lesser of two bones of lower leg; (b) A prehistoric metal clasp or safety pin.

Filly -- Young mare.

Fire-drill -- A wooden drill, rotated between hands, on a wooden hearth to generate fire by friction.

Fire-piston (Fire syringe) -- A piston pressed into hollow cylinder to generate fire by compression of air.

Fire-plow -- A stick plowed along a groove in another piece of wood to generate fire by friction.

Firstling -- First-born offspring of man or domesticated animals, especially when reserved as sacrifice.

Flail -- A threshing implement or weapon consisting of a club, attached at one end to end of a handle so as to swing freely.

Folk lore -- The comparative study of folk tales and of customs and beliefs of a superstitious or legendary nature. Used in broader sense in England.

Folkway (Sumner) -- A customary element of behavior.

Fontanelle -- An interval closed by a membrane between the angles of the cranial bones of an infant.

Foramen -- A small hole or opening in a bone.

Foreshaft -- A piece connecting the shaft and head of spear, arrow, or other implement.

Forge -- A place where metal is wrought by heating and hammering.

Forking -- The distinction in terminology from relatives in the male line to relatives in female line.

Fostering -- Nursing and rearing of children by foster-parents.

Foundation Sacrifice -- A sacrifice, especially of a human being, to provide a guardian spirit in laying the foundation of a building.

Frankfort Horizontal -- The plane on which a skull is oriented, drawn through the upper margin of the external ear openings and the lower margins of the eye orbits.

Freemartin -- An infertile female calf born as the twin of a male.

Fricative -- A consonant (eg. "f", "v") produced by the friction of the breath when forced through a restricted oral passage.

Gaff -- Hook with handle. Used in fishing.

Gens -- An unilateral kin-group, especially patrilineal.

Geophagy -- Practice of eating earth or clay.

Gerontocracy -- Government by the old men.

Ghat -- A broad stairway descending to a river, often from a temple, used in India for bathing.

Ghee -- Clarified butter. A staple dairy produce in India.

Ghost -- Disembodied soul of deceased human being.

Ghost dance -- An American Indian religious dance associated with messianic beliefs.

Gild (Guild) -- An occupational association for mutual aid.

Glabella -- A point over the nose, midway between the supra-orbital ridges.

Glottal stop -- A stopped consonant produced by closing and sudden opening by the glottis (e. g., the elephant).

Gnathion -- The lowest median point on the mandible or chin.

Go-between -- An intermediate agent, especially in arranging a marriage.

Gorge -- A support for bait which a fish swallows and cannot eject.

Gorget -- An ornament worn at the neck or throat.

Goura -- A combined string and wind instrument of South Africa, consisting of a bow with its string fastened to a stave at one end by a quill which is vibrated with the breath.

Grave-escort -- Human beings sacrificed at a funeral to provide the

deceased with retainers in the other world.

Group marriage -- Theoretical marital union of several men with several women.

Guardian spirit -- An individual protective spirit often acquired especially in North America through a dream or vision.

Gunwale -- Upper edge or side of boat.

Gynecocracy -- Matriarchy or government by women (Bachofen).

Hack -- A primitive hoe or pick.

Hamstring -- To disable by cutting the large tendons in back of knee on either side.

Handfasting -- A European form of trial marriage contracted by the clasping of hands and ripening into marriage with pregnancy or the birth of a child.

Hand game -- An American Indian game in which one player or two each conceals in his hands a pair of wooden or bone cylinders, one plain and the other marked, while the opponents guess the location of the plain cylinder.

Harpoon -- A spear with detachable head attached to a line.

Haruspication -- Divination, especially by inspecting the entrails of sacrificial animals.

Hashish -- A narcotic preparation of hemp, chewed or smoked in the East.

Heddle -- An appliance in weaving to raise or lower a set of warp thread so that the weft may be inserted.

Heifer -- A young cow that has not calved.

Heliolithic -- Pertaining to the diffusionist theory of the Egyptian origin of higher culture.

Heili -- Rim of the ear. Often pierced for insertion of ornaments.

Henotheism -- Belief in a pantheon in which one god is superior to the others but not supreme.

Hetairism -- A hypothetical primitive stage of promiscuity (Bachofen).

Heirodule -- A temple slave, especially one serving the god as a sacred prostitute.

Hlonipa -- (Zulu) -- Tabu against mentioning the name of a dead person.

Homeopathic magic -- Magic operating on the principle that like influences like. (Imitative magic.)

Hominy -- American Indian dish of hulled or crushed maize prepared by boiling.

Hook-swinging -- A religious rite of self torture in which the body is suspended by hooks thrust through the skin (Plains Sun Dance).

Hypsicranial -- Characterized by a relatively high skull.

Imitative magic -- Magic based on principle that like affects like.

Incest -- Sexual intercourse by relatives between whom marriage is forbidden.

Infibulation -- Attachment of a contrivance to the female genitals to prevent copulation.

Infix -- A grammatical element inserted in the middle of a word.

Inion -- Most prominent part of the external occipital protuberance.

Javelin -- A throwing spear.

Jettatura -- A spell cast by persons supposedly possessed of the evil eye.

Jinn (singular of Jinni) -- Spirits or demons in Mohammedan folk belief; often regarded as susceptible to magical coercion.

Joking relationships -- A relationship between definite kinsman characterized by license rather than avoidance.

Juju -- A West African fetish or its supernatural power.

Junior right -- Preferential inheritance by the youngest son or child.

Jus Primae Noctis -- Right of a chief, lord, or priest to possess the bride on the first night of her marriage.

Kachina -- An ancestral clan spirit of the Hopi or a doll or masked dancer representing such a spirit.

Kami -- An ancestral spirit or divinity in Japanese Shinto belief.

Karma -- Buddhist theory that the ethereal character of one's acts determine one's lot in future existences.

Kava -- A non-alcoholic Polynesian drink made by chewing the roots of a species of pepper.

Kayak -- Skin man's boat of the Eskimos.

Kindred -- A bilateral kin group.

King's peace -- Taboo or law against private vengeance, first imposed by the king on his own household and gradually extended to the entire realm.

King's touch -- Belief that a king can cure a scrofulous person by touching him.

Kirn -- The last sheaf of a harvest; hence, a festival.

Kitchen midden -- A heap of sherds and refuse marking the site of a prehistoric human habitation.

Kiva -- An underground chamber used for religious rites by the Pueblo Indians.

Knobkerrie -- Knobbed throwing stick of the South African Tribes.

Kraal -- A corral; South African native village or village community.

Kula -- A system of ceremonial exchange in the Trobriand Islands.

Kulturkreis -- A Graebnerian culture area.

Kumiss -- A fermented drink of mare's or camel's milk.

Labret -- A lip plug.

Lama -- A Tibetan or Mongolian priest or monk.

Lambda -- Point of junction of sagittal and lambdoid sutures.

Lanugo -- The downy foetal hair.

Lares -- Ancient Roman tutelary divinities of particular places, i. e., houses, fields, cross roads.

Leach -- To dissolve out a soluble substance by the action of a percolating liquid.

Leiotrichous -- Possessing straight hair.

Leptorrhine -- Possessing a relatively narrow nose.

Leucoderm -- Characterized by a light skin color.

Levirate -- Rule that a man must marry his brother's widow.

Lex talionis -- Law of retaliation.

- Libatio -- Pouring out of a liquor as a sacrifice.
- Lineam -- A Hindu phallic symbol used in the worship of Shiva.
- Linguistic stock -- A group of related languages, unrelated to others.
- Lintel -- A horizontal piece spanning a door or other opening.
- Lunar month -- Period from one new moon to the next, amounting to a fraction more than $29\frac{1}{2}$ days.
- Lure -- An object, not itself edible, used instead of bait to attract fish.
- Lycanthropy -- The assumption by witchcraft of the form and traits of a wolf.
- Mace -- A heavy staff or club, usually of metal, and often spiked.
- Macrodon't -- Having large teeth.
- Mana (Melanesian) -- Impersonal supernatural power.
- Mandrake -- An European herb with a forked root, often resembling a human body and consequently invested with human attributes and widely used in medicine and magic.
- Manes -- Spirits of the dead and underworld divinities.
- Manioc -- Cassava or the plant which yields it.
- Manitu -- A supernatural being or power among the Algonquin tribes.
- Mantra -- A sacred Vedic text recited as a spell by Brahmins.
- Manumission -- Release from slavery.
- Manus -- The paternal authority of a husband over his wife.
- Matriarchate -- A hypothetical state of female authority, analogous to patriarchy.
- Matrilineal -- Characterized by descent, inheritance and/or succession in the female line.
- Matrilocal -- Characterized by residence of husband with his wife or her group.
- Matripotestal -- Characterized by authority vested in the mother.
- Mead -- A fermented drink made from honey and water.
- Medicine Bundle -- A fetish bundle of plains and most of the central Algonquin Indians.
- Mediterranean Release -- A type of arrow release in which three fingers are placed across the string, the arrow being held lightly between the first and second.
- Megalith -- A large stone monument, especially prehistoric.
- Melanoderm -- Characterized by a dark skin.
- Menhir -- A single erect stone monument.
- Menopause -- Period of natural cessation of menstruation.
- Merging (Lowie) -- Grouping of lineal and collateral relatives under same term.
- Metate -- A flat or concave stone on which maize is ground.
- Metempsychosis -- Passing of soul at death into another body, animal or human.
- Metronymic -- Bearing the name of mother or another relative in its female line.
- Microdon't -- Having small teeth.
- Microolith -- A tiny chipped stone implement characteristic of the

Mir -- A collectivistic Russian village community.

Miscegenation -- Interbreeding of different races, where contrary to the mores.

Mnemonic -- Assisting or intending to assist the memory, i.e. Quipu.

Moiety -- A primary tribal subdivision where there are two such.

Moko -- Maori Tattooing.

Monandry -- More or less durable informal monopoly by a woman by one husband at a time.

Mongolian release -- A type of arrow release in which the thumb is crooked around the string with the thumb across the nail of the first finger.

Monogamy -- Institutionalized marital union of one man and one woman to the exclusion of any plurality of spouses.

Monolith -- A single large stone monument; i. e. A menhir.

Morning gift -- A gift from husband to bride on morning after the wedding. Common Germanic custom.

Mortmain -- Property in the hands of the church; ecclesiastics in early law conceived as civilly dead.

Mos (pl. mores) -- A popular usage or folkway which is thought especially conducive to societal welfare, which exerts a coercive influence on individuals to conform, but which is not coordinated by any authority.

Mother-right -- Type of society, originally characterized by all or most of the following: maternal descent, inheritance, or succession, matrilocal residence, and maternal or avuncular domestic authority.

Nagualism -- A Mexican development with ritual and organization of the guardian spirit concept.

Nasion -- Median part of the fronto-nasal suture.

Necromancy -- Divination by communication with the spirits of the dead; hence black magic in general.

Needfire -- A purificatory fire built on occasions of need, such as epidemics, cattle plagues, and outbreaks of witchcraft.

Nephew-right -- Right of a nephew to inherit from or succeed his maternal uncle.

Nome -- A province or district of ancient Egypt.

Nose Flute -- A kind of flute played by blowing through the nostrils.

Nubility -- Marriageability in females.

Obelisk -- An upright gradually tapering four-sided pillar terminating in a pyramid.

Obsidian -- Volcanic glass which, because it fractures readily into sharp edged flakes, is widely used in manufacturing stone artifacts.

Occipital -- Pertaining to the occiput.

Ontogeny -- Life history of an individual organism.

Onychomancy -- Divination by means of finger nails.

Orbitale -- Lowest point in margin of eye orbit.

Ordeal -- A painful or dangerous test of guilt or innocence. Supposedly under divine control, escape from injury being regarded as a vindication of innocence.

Orenda -- The Iroquois conception of supernatural power.

ANTHROPOLOGICAL GLOSSARY (CONT.)

Ortho-cousin -- A cousin belonging to the same sib.; i. e., a father's brother's child under patrilineal descent or a mother's sister's child under matrilineal descent.

Ortho-nathous -- Characterized by relatively flat face or a large facial or maxillary angle.

Ossuary -- Place where bones of the dead are deposited.

Osteometry -- Measurement of the bones of the skeleton.

Outrigger -- An auxiliary float attached to a boat by a spar.

Paddy -- Rice, especially when growing.

Palaver -- An African parley, debate, or conference.

Pan-pipe -- A musical instrument consisting of several tubes of varying length.

Pantheism -- Doctrine that the universe as a whole is God.

Pantun -- A Malay verse form for short improvised poems.

Parallel cousin -- A father's brother's or a mother's sister's child.

Parallelism -- The independent development of similar culture traits in different regions.

Parfleche -- An untanned buffalo hide with the hair removed, usually decorated and folded to form a bag or case. Made by Plains Indians.

Pariah -- A member of a low or despised caste.

Parka -- An outer garment of tailored skin worn by the Eskimo and Athapascans. (To be continued)

*****SWM*****

RUMINATIONS

partly about poultry but mostly about other things.---By the Boss.

Chief, I have been feeling rather low in my mind and humble the last day or two because of some fifteen or twenty-year-old chickens that have come home to roost.

It has to do with a chart we were making up to show the various lines of authority running from headquarters to the many field stations. In a Taurian session, which lasted so long that I barely got under the wire at six o'clock for dinner, it developed that one man was sure if we put the Custodian of Casa Grande up among the headquarters it would develop a lot of grief in the minds of some of the field men who would say: "That rascal at Casa Grande is no better than we, so why is so much favoritism shown by putting him up there?" Of course, as a matter of fact, he is put up there to show that in addition to his regular duties as a custodian, we are saddling a lot of headquarters work on him, such as taking care of quarters and offices, running the machinery pool, keeping track of the condition of all field equipment, etc. There was a time when the field men claimed, with some justice, that we used headquarters men to help cut the local problems at Casa Grande. That time has been gone these many moons and now we are using the local Custodian to help out an overworked headquarters staff. If our headquarters were at any other place than a monument where we could do this, we would have had to ask for another man some time back in

order to handle this work. In other words, this is another gain we make by being located at one of our monuments instead of in the city. Among the offsetting disadvantages is this feeling of the field men that the monument at headquarters, which in reality is always being pulled and hauled around and having its routine interfered with and upset by the experiments we are continually trying out on it, is in some way a favored monument. I don't know how we can correct this impression unless we pull in one or two field men and let them have a month of this soft, easy work and thus put them in the way of finding out how much of a snap it is.

I like to tell the yarn about the old man who was counseling his son who was just starting out in the world. The old man said: "Son, honesty is the best policy; I've tried both and I know." There will probably always be a yowl between the lone-post field man and the headquarters man as to which has the worst end of the deal. Personally, my heart is with each of them for I've tried both and I know.

A man out in the sticks on our lone-post jobs has to do everything in the way of taking care of his monument and its visitors, the dirty work right along with the rest. He must work at any and all hours whenever the work is there to be done, must be late at meals and occasionally miss one, cannot have regular time off, and so on. There are some offsetting advantages to these disadvantages, but I need not name them here. I have done years of time on a lone post job and have gone through every stage of self pity at my abandoned condition and anger at the boss and the outfit up there at the main office who have abandoned me, that any of these modern field men will have great trouble working up any kind of a mad spell that I didn't go through before the Park Service was invented.

I once heard Mr. Albright tell a superintendent that a certain alibi wouldn't explain a certain situation: that he had used that alibi too often himself when he was running the Yellowstone to accept it from another superintendent. So I am with a field man--I've been there.

Especially does a field man get mad when he writes in for information or for supplies and doesn't get them by return mail. We have just been overhauling things around the office in an attempt to correct this very trouble. When the man in the field runs out of envelopes, he wants envelopes right now and no alibi or sweet talk will fill the need ten days later. On such little things hang grouches and bad feelings.

On the other hand, the field man assumes something which is far from the truth; he assumes that he knows all about what is going on at the main office and what makes that outfit up there tick. And he sometimes builds quite a high house on this flock of sand. Eventually the time comes when his house falls, but in the meantime he has been **score**

RUMINATIONS (CONT.)

over something that never happened as he assumed it did, and everybody has been out of humor over nothing at all. Like that field man who was all tied in knots because headquarters had feathered their nest, so to speak, with electric refrigerators and were letting the field go without. It just wasn't true; the last families to get artificial refrigeration were those at headquarters and this poor fellow had been all wrought up over something that hadn't happened.

And on the obverse side of this coin is the headquarters man who wonders what in the world that field man does with all his spare time and why can't he get those six or eight reports out promptly on the days they are due instead of hanging fire a few days and balling up the main report here in the office which can't be made up until they come in. And why does a field man always use his last envelope to write to you that he is now out and for goodness sake to hurry some more to him. Why does he always order his ink in the winter when it can freeze and break on the way to him and never order it in summer? Of course, it isn't always that way; the harrassed office man just thinks it is and builds a house of wrath on his flock of sand.

You understand, Chief, these little knocks are nothing that will tear the machine apart: it is running right along and delivering good service, but if we could adjust the parts to a little closer tolerance the **service** would be still better. If they could just understand that the man up top-side has made all these fool mistakes and take his word for it that they are mistakes, everything would run better. After all, the Boss may know the lone-post job though he doesn't happen to hold one at this time.

So the chart will have to show the custodian up in the headquarters staff for certain reasons, obscure, perhaps, to the lone field man but plain enough to the man who made and uses the chart, and if the field men will just assume that the Boss knows what he is talking about, it may save him building chicken roosts in the now far distant future.

And we will put the chart in, by the way, just to prove that there isn't any real dynamite in it.

Cordially,

The Boss

HEADQUARTERS.

Superintendent

Asst. Superintendent

Naturalist

Chief Clerk

Engineer

Custodian C. Grande

Chief Mechanic

Jr. Park Natural.

Jr. Park Arch.

Clerk

Clerk

Utility Man

CCC

CCC Clerk

Bookkeeper

FIELD

Arches

Antelope

Bandelier

deChelly

Capulin

CCC Side Carr

Ranger

CCC

Rang.

Rang.

Rang.

Rang.

CCC

CCC

Grader Operator

CCC

CCC

Chaco

Chiricahua

El Morro

Gila Cliff

Gran Quiv.

Montezuma

Ranger

CCC

CCC

Ranger

Grader Operator

Nat. Bridges

Navajo

Organ Pipe

Pine Spring

Saguaro

Tonto

Ranger

Walnut

White Sands

Wupatki

Tumacacori

Yucca House

Tuzigoot

Ranger

Ranger

Ranger

Grader Operator

Bandelier

CCC Camp

Chiricahua

CCC Camp

CCC

Mobile Unit

---CCC. Will fold up.

---Badly needed.

---Part time

ORGANIZATION CHART SOUTHWESTERN MONUMENTS

SOUTHWESTERN MONUMENTS

MONTHLY REPORT



F E B R U A R Y - - - 1 9 3 8

DEPARTMENT	OF	THE	INTERIOR
NATIONAL	PARK	SERVICE	

SOUTHWESTERN MONUMENTS

FEBRUARY, 1938, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona: Frank Pinkley, superintendent; Hugh M. Miller, assistant superintendent; Parke W. Soule, chief clerk; J. H. Tovrea, assistant engineer; Dale S. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Natt N. Dodge, junior park naturalist; Millard Singerman and Luis A. Gastellum, clerk-stenographers; Ira G. Goodwin, CCC clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

<u>FIELD STATIONS</u>	<u>VISITORS, 1937</u>	<u>ACRES</u>
1. <u>Arches</u> , 1,000, Moab, Utah, Harry Reed, custodian - - -		4,520.00
2. <u>Aztec Ruins</u> , 14,303, Aztec, N. M., T. C. Miller, cust. -		25.88
3. <u>Bandelier</u> , 14,380, Santa Fe, N. M., C. G. Harrins, - - -		26,026.20
custodian; George H. Sholly, grader operator.-		
4. <u>Canyon de Chelly</u> , 1,422, Chin Lee, Ariz., Johnwill Faris, custodian.		83,840.00
5. <u>Capulin Mountain</u> , 26,100, Capulin, N. M., H. Farr, cu. -		680.37
6. <u>Casa Grande</u> , 33,661, Coolidge, Ariz., A. T. Bicknell,		472.50
custodian; David J. Jones, park ranger; Jimmie Rodgers, Stremple Coyle, Marvin Hale, and Teddy Savage CCC guides and helpers.		
7. <u>Chaco Canyon</u> , 8,014, Chaco Canyon, N.M., L.T. McKinney, cu.		21,512.37
8. <u>Chiricahua</u> , 9,228, Douglas, Ariz., Frank L. Fish, cust.;		4,480.00
Enrollee Savoy and CCC Guides Homer Bennett and William Stone.		
9. <u>El Morro</u> , 2,298, Ramah, N.M., R. R. Budlong, cust. - - -		240.00
10. <u>Gila Cliff Dwellings</u> , 250, Cliff, N. M., no custodian - -		160.00
11. <u>Gran Quivira</u> , 4,414, Gran Quivira, N. M., G.L. Boundey, cu.		610.94
12. <u>Hoverweep</u> , 500, in charge of T.C. Miller, Aztec, N.M. - - -		225.80
13. <u>Montezuma Castle</u> , 9,813, Camp Verde, Ariz., Earl Jackson,		520.00
custodian; Jesse D. Jennings, park ranger.		
14. <u>Natural Bridges</u> , 740, Blanding, Utah, Zeke Johnson, cu. -		2,740.00
15. <u>Navajo</u> , 329, Kayenta, Arizona, John Wetherill, custodian;		360.00
Milton Wetherill, park ranger-historian.		
16. <u>Organ Pipe Cactus</u> , 5,000, Ajo, Ariz., no custodian - - -		330,670.00
17. <u>Pipe Spring</u> , 1,042, Moccasin, Ariz., Leonard Heaton, cu. --		40.00
18. <u>Rainbow Bridge</u> , 300 Tonalea, Ariz., no custodian - - -		160.00
19. <u>Saguaro</u> , 20,000, Tucson, Arizona, No custodian - - - -		63,284.00
20. <u>Sunset Crater</u> , 10,000, Flagstaff, Ariz., P. Beaubien, in -		3,040.00
charge.		
21. <u>Tonto</u> , 5,368, Roosevelt, Ariz., T. Onstott, in charge - -		1,120.00
22. <u>Tumacacori</u> , 18,472, Box 2225, Tucson, Ariz., L. Caywood, cu.		10.00
23. <u>Walnut Canyon</u> , 10,772, Flagstaff, Ariz., P. Beaubien, rang.		960.00
24. <u>White Sands</u> , 91,532, Alamogordo, N. Mex., Tom Charles,		142,987.00
cust.; J. B. Felton, park ranger, Joe Shepperd, grader operator.		
25. <u>Wupatki</u> , 2,080, Flagstaff, Ariz., P. Beaubien, in charge - -		35,865.00
26. <u>Yucca House</u> , 400, Cortez, Colo., T.C. Miller, Aztec N.M.		9.60
Total--291,426 visitors last year, 1,132 sq. mi.; acres-		724,619.96

OPENING

By Superintendent **Frank Pinkley**,
Southwestern Monuments,
Coolidge, Arizona.

Dear Mr. Director:

The mild winter, which we have been having through the district of the Southwestern Monuments, has held through February and is reflected somewhat in the increase in visitors over February of last year when the upper levels of the district were pretty well snowed in.

We have had a good run of winter visitors in the lower levels of our district; El Paso, Tucson, and Phoenix, but curio stores and luxuries trades tell me they are not spending as freely as was expected.

Unemployment has been on the increase, cotton picking being over and the copper mines further easing men out because of market conditions. The situation is not critical and shopping crowds on the streets of the towns testify that there is still considerable money in circulation.

We have had no personnel changes during the month. Papers are in transit looking to filling three vacant positions and we are beginning to stir up the matter of filling some of our temporary summer positions. We were undermanned again at Aztec where slowness of getting papers through has caused Mr. Miller to put in considerable overtime again this month. Mr. Caywood, of Tumacacori, went to the hospital in Nogales for an operation and is reported getting along all right. Miss Hortensia Espinosa and Mr. Dale King were married and spent a couple of weeks honeymooning on the west coast of Mexico.

We have received an allotment for rebuilding at Bandelier the shop which was destroyed by fire and are putting out bids for the materials. Allotments for replacing tools destroyed have not yet come through, due to the need of special legislation, and the CCC camp is badly handicapped for lack of shop tools and equipment.

Prospects seem good for us to get back some of our impounded appropriation and we are very happy at the outlook. It will put us on a more efficient basis, the expenditure of the 10% of impounded money probably increasing our efficiency 20%. Justifications for the return of the money were submitted during the month.

Work has gone on during the month covering our land problems at Saguaro, permit problems at Organ Pipe and Chaco, and extension problems at Chiricahua. It looks as if the Chiricahua extension may be in line for solution within the next month or two.

A report was made on the water problem at El Morro and we are

OPENING (CONT.)

awaiting a decision on it. Studies of the water problem at White Sands have been continued and there is hope of potable water in the near future.

Visitors have continued to interest us as much as ever during the past month. We are puzzled by a sudden speeding up of the visitors at Casa Grande; they were in a hurry and had a little less time to spend than in December and January. We have not found the cause.

The Desert Trail, a study in self-guiding trails, which we planned to start at Casa Grande, lagged on the ways and has not yet been launched. We are hoping now to get it started in March. Tommie Onstott, temporary ranger at Tonto, is also planning some studies on a self-guiding trail. He has an ideal short trail of only a hundred yards, in mind. It leads off his parking area and will be useful as a means of keeping visitors busy while he is out on a trip to the ruins with another party.

The museum cases at Casa Grande were overhauled a little during the month. They are not yet satisfactory and further study will have to be made on them.

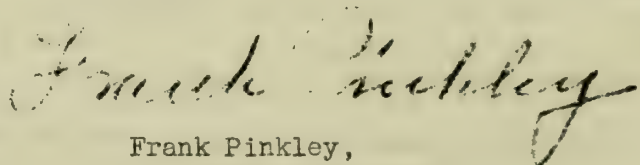
Dr. Potter was out from the Washington Office during the month. He made some studies of the geological problems of the White Sands National Monument which will be used in the installation of the museum exhibits at that monument.

During the month, we received reports on the studies of Dr. Gould and Dr. McDougall covering water supplies, flora and fauna of Organ Pipe Cactus National Monument. It looks as if obtaining a water supply at that monument may not be as difficult as we had feared.

The proposed Tuzigoot Monument was delayed again by flaws in the deed and will require considerably more work before it is in shape for a proclamation. Unfortunately the local Arizona papers jumped the gun on us and announced it several months ago as having been made a national monument. Since that time we have had a steady run of inquiries for information concerning it.

On the whole the month has been a good one and, while we expect March to drop off slightly in numbers of visitors, we are quite sure there will be no drop in problems, so we are looking forward to plenty of work.

Cordially,



Frank Pinkley,
Superintendent.

CONDENSED REPORT

IN WHICH ARE GIVEN HIGHLIGHTS OF THE MONTH

Coolidge, Arizona,
March 1, 1938.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for the month of February, 1938, follows:

<u>TRAVEL</u>	<u>Feb.</u> <u>1938</u>	<u>Feb.</u> <u>1937</u>	<u>Jan.</u> <u>1938</u>	<u>Travel Year</u> <u>To Date</u>
Arches	35.	--	--	296
Aztec Ruins	810	214	278	3,755
Bandelier	221	260	252	2,697
Canyon de Chelly	45	--	5	257
Capulin Mountain	750	700	500	3,000
Casa Grande	4,227	3,845	3,045	17,070
Chaco Canyon	301	91	379	986
Chiricahua	402	205	300	2,694
El Morro	50	--	--	590
Gila Cliff Dwelling	*--	--	--	25
Gran Quivira	135	109	129	848
Hovenweep	*--	--	--	--
Montezuma Castle	466	313	436	2,907
Natural Bridges	*--	--	--	147
Navajo	3	--	--	81
Organ Pipe Cactus	*700	--	--	3,500
Pipe Spring	80	5	137	640
Rainbow Bridge	*--	--	--	66
Saguaro	*3,500	1,891	2,000	11,600
Sunset Crater	*150	--	74	1,633
Tonto	684	700	724	2,223
Tumacacori	1,795	2,864	1,512	6,288
Walnut Canyon	127	--	187	2,013
White Sands	5,704	4,460	3,794	25,435
Wupatki	39	--	70	352
Yucca House	*--	--	--	70
Totals	<u>20,224</u>	<u>15,657</u>	<u>13,859</u>	<u>89,173</u>
*Estimated				

Probably due to the mild and open winter experienced throughout the Southwest, travel has held up well during the month, exceeding

CONDENSED REPORT (CONT.)

that of February, 1937, and also that of January, 1938. Travel is discussed in detail under the heading, "Visitor Notes" on page 157 of this report, and a comparative chart is shown on page 159.

000 GENERAL

010 Matters of Unusual Interest or Importance.

Aztec Ruins: An American Legion and Auxilliary Convention required temporary transfer of two custodians from other monuments to aid in handling the crowd (see p. 119-21). Stabilization work is imperative in the near future (see p. 120).

Arches: Plans for developments in Utah by the D. & R.G.W. Railroad that will increase travel to Arches are underway (see p. 141).

Bandelier: An official weather recording station was established this month (see p. 145).

Casa Grande: Preservative used in protecting ruin walls has not proved satisfactory (see p. 126).

Chiricahua: Interest in winter sports is growing and will probably result in pressure to keep road open over mountains (see p. 104).

White Sands, Aztec, Casa Grande: Easter Sunrise Services will be held on these monuments (see p. 100).

Desert Monuments: Indications point to an early spring with a profusion of desert flowers. Visitors interested in the floral display should plan to come early.

020 Weather

For the third month, reports from the majority of monuments indicate warm, mild weather. Navajo and Walnut Canyon register stormy and unpleasant conditions and several areas report cold and wind, and snow has been rather general during the latter part of the month. Several custodians are enthused over prospects of more moisture than during several springs past while others are pessimistic regarding precipitation and range conditions in their vicinities. Aztec Ruins and Capulin Mountain report the most delightful winter on record.

023 In Nearby States

Capulin Mountain: Precipitation has been general for 1,000 miles east and south thoroughly wetting the notorious "Dust Bowl" area (see p. 123).

100 ADMINISTRATIVE

123 Visits by National Park Service Personnel.

Aztec Ruins: C. Carter, Chuck Richey, Mrs. J. Miller.

Bandelier: H. A. Montgomery, Clark Wells, A. B. Stevens.

Casa Grande: C. N. Gould, W. B. McDougall, F. Nichols, F. Eastman, F. C. Potter, Wm. Leicht, G. Hetherington, Wm. Stevenson, and Wm. Burnham.

Chiricahua: C. N. Gould, W. B. McDougall.

Montezuma Castle: C. N. Gould, W. B. McDougall.

Organ Pipe: C. N. Gould, W. B. McDougall, N. N. Dodge.

Gran Quivira: Dr. F. C. Potter.

Tonto: C. N. Gould, W. B. McDougall, F. C. Potter.

Tumacacori: Dale King, Luis Gastelum.

White Sands: L. E. Bennett, C. Richey, F. C. Potter, J. E. Kell.

140 Labor Situation

Montezuma Castle: Due to the curtailment of mining operations in the copper districts, many men have been laid off.

150 New Equipment

Banquetier: Borins Bar and Grinder (see p. 129) and weather recording equipment (see p. 145) have been received.

Casa Grande: One new Chevrolet pick-up for the custodian (see p. 129).

Chaco Canyon: A portable paint spray outfit has been sent out from headquarters (see p. 129).

El Morro: Weather recording equipment has been shipped but had not been received by the custodian (see p. 113).

170 Plans, Maps, and Surveys

White Sands: Plans for the geological display for the museum are being prepared by Dr. F. C. Potter (see p. 104).

Tonto: A nature trail is being laid out (see p. 124).

Casa Grande: Plans for a "Desert Trail" are nearly finished.

Charicahua: Preliminary plans for the Fire Atlas are being worked out (see p. 103).

Montezuma Castle: A large map of the valley has been prepared by the custodian (see p. 137).

El Morro: Data on nearby wells have been obtained by the custodian preliminary to a program of obtaining potable water for the monument.

180 Circulars, Placards, and Publicity Bulletins.

Casa Grande: Fifteen hundred of the new folders have been distributed to visitors (see p. 126).

El Morro: Detailed information to form the basis of a radio dramatization went forward to Washington, D. C. (A portion of the material appears on page 157 of this month's Supplement).

White Sands: Movies of the Sands are to be shown in the Atlanta, Georgia, public schools (see p. 99-100). In addition to other publicity, a story on the Sands is carried in the March "Desert Magazine", and the cover picture, poem, and a page spread of the January-February "Park Service Bulletin" were devoted to White Sands National Monument (see p. 100).

Tonto and Casa Grande also came in for publicity in the March "Desert Magazine".

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

210 Maintenance, Unusual

Pipe Spring: Suckers have been cut from cottonwood trees.

Walnut Canyon: Five cars were pulled out of the mud (see p. 108).

White Sands: An unusual amount of sand has been removed from the road because of the drifting by winds (see p. 103).

220 Improvements

Navajo: Fifty yards of trail retaining wall have been built.

Casa Grande: The temporary darkroom has been renovated and put into use. Creosote bushes have been transplanted to screen the sewage pump shelter (see p. 129).

Bandelier: A flag pole and drinking fountain have been installed near the Administration Building (see p. 146).

Tonto: Two hundred yards of trail have been widened, guttered, and surfaced (see p. 124).

White Sands: Considerable planting has been done by the R. D.

231 CCC Construction

Casa Grande: Fifty five man days have been put into warehouse construction and 136 man days on shop construction. Walls of the latter are up to the plate line (see p. 129).

Bandelier: The storage reservoir project has been completed. Wall construction on the Lobby and Sales Room Unit is up to lintel height. The Employees Dormitory is ready for the roofing felt (see p. 149).

Chiricahua: Employees Residence is 90 percent complete, extension of the utility area project is 40 percent complete, and the masonry wall is 30 percent complete. Four hundred square yards of banks have been sloped, one fourth mile of truck trail surfaced, and two miles of horse trail maintained. Snow removal has required 30 man days. (See p. 107).

Pipe Spring: Five trucks and 50 men were utilized for two days in filling a wash (see p. 111).

232 R. D. Construction

White Sands: Work on the Administration Building, museum, and utility area are progressing well (see p. 101).

300 ACTIVITIES OF OTHER AGENCIES IN THE MONUMENTS

320 Cooperating Agencies

321--Government

Headquarters: The U. S. Forest Service officials have aided in facilitating the obtaining of scientific material for the University of Colorado Museum. Arizona State Fish and Game officials have been helpful in planning to restock several of the monuments with quail.

Canyon de Chelly: The Soil Conservation Service has done some planting and fencing.

El Morro: The New Mexico State Game Warden is providing quail for restocking the monument (see p. 117).

322--Non-Government

Headquarters: Mr. J. E. Fast has been invaluable in aiding with the bird-banding program and records this month.

350 Donations and Accessions

Pipe Spring: Pioneer relics consisting of one flatiron handle,

CONDENSED REPORT (CONT.)

one earthen platter, one butter bowl, one cook stove, and one early Piute Indian basket have been received (see p. 111).
Tumacacori: An Indian thrashing paddle and bread board have been donated to the museum (see p. 114).

400 FLORA, FAUNA, AND NATURAL PHENOMENA

410 Ranger, Naturalist and Guide Service

Natural Bridges: The custodian has spent the month in the city painting word pictures of the monument (see p. 131).

White Sands: People are expressing a considerable interest in the geology of the monument (see p. 101).

420 Museum Service

Montezuma Castle: A model of a cliff room is under way (see p. 137). A question as to the value of museum labels is brought up by the custodian (see p. 138).

440 Insect Control

Chiricahua: Several "bug trees" have been noted (see p. 106).

460 Birds

Bandelier: The bird banding report appears on page 146.

Capulin Mountain: Two species of eagles have been seen (p. 123).

Casa Grande: Nesting activities of Cactus Wrens and horned owls are influencing visitor records (see p. 128).

El Morro: The State Fish and Game Department of New Mexico has promised to provide Scaled Quail for restocking the monument.

Gran Quivira: Birds are increasing in number (see p. 113).

Headquarters: The bird-banding report appears on page 155.

Navajo: Bird observations are recorded on page 122.

Montezuma Castle: Betty Jackson's report is on page 139.

Pipe Spring: The report of bird banding appears on page 110.

Tumacacori bird banding records are on page 114.

Walnut Canyon: A record of annual returns is shown on page 108-9.

470 Animals

Capulin Mountain: Deer are numerous and the porcupines are gradually being reduced to normal (see p. 123).

Montezuma Castle: Frogs are out of hibernation. Jackrabbits are apparently on the decrease (see p. 102).

480 Miscellaneous

El Morro: Spectacular northern lights were seen Feb. 22 (p. 116).

Chiricahua: Horseback service is planned (see p. 107).

Chaco Canyon: Threatening Rock continues to move (see p. 133).

Canyon de Chelly: Rabies threatens Indian dogs (see p. 143).

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

510 Increase or Decrease of Travel

Tumacacori: This monument is the only one of the group registering a large decrease. For discussion see pages 157-159.

530 Newsworthy Visitors

White Sands: W. S. Bell, D. W. Wocton, B. D. Butler, U. R. Beeson, and F. K. Vreeland.

Casa Grande: Dr. Chas. Mayo, Donald Culross Peattie, Clarence Buddington Kelland, and Kenneth Chapman.

CONDENSED REPORT (CONT.)

540 Public Camps

Casa Grande: Picnic grounds and trailer camp popular (see p. 127).

Gran Quivira: Sunday visitors have necessitated the establishment of a picnic area (see p. 113).

White Sands: The problem of keeping a sufficient supply of wood for campers is becoming acute (see p. 100).

600 PROTECTION

610 Police

Aztec Ruins: A guilty conscience caused the return of a museum specimen stolen last summer (see p. 119).

White Sands: Afforded haven from bandits (see p. 103).

620 Fire

Barguier: a pre-suppression program is under way (see p. 150).

640 Destruction of Predators

Chiricahua: Five house cats have been killed (see p. 106).

Pipe Springs: Two house cats have been killed (see p. 111).

650 Signs

Walnut Canyon: Painting signs has taken considerable time (p. 108).

Capulin Mountain, Chiricahua, de Chelly: The Uniform Distress Signal signs have been posted.

700 ARCHEOLOGY, HISTORY, AND PRE-HISTORY

900 MISCELLANEOUS

MAIL COUNT

Incoming:

Official

1,554

Personal

1,194

Total incoming

2,748

Outgoing:

Official only

2,743

Total outgoing

2,743

TOTAL POSTAL MAIL

5,491

Telegrams:

Incoming

21

Outgoing

11

Total telegrams

32

GRAND TOTAL PIECES OF MAIL HANDLED

5,523

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

WHITE SANDS

By Tom Charles, custodian,
Alamogordo, New Mexico.

Visitors this month, 5,704; total since October 1, 25,435.

Despite the fact that much of the month has been stormy and cold in other sections of the country and that travel, as a whole, has been bad, White Sands has had a good month. This applies especially to those whom we are prone to call the "better class", those with the larger automobiles. The wealthy people of El Paso and surrounding cities have visited us more than usual and many of them for the first time. A common statement among them is, "I have known about the Sands for forty years but I had no idea it was any thing like this out here."

Their friends from the east whom they have brought out to see the Sands are invariably loud in their praise, so it seems that we are gradually breaking down the feeling among local people that it is just another sand pile and their friends are helping us to convince them that, "we have something here".

I was especially pleased to have Dr. W. S. Bell, Director of Visual Education for the schools of Atlanta, Georgia, with us this month. School teachers tell me that Atlanta leads in visual education and Dr. Bell advised us that he used the Carlsbad movie reels last month and expects to use the White Sands reel in all the rooms of the Atlanta schools this month.

Another interesting visitor was D. W. Wootton of Chicago, manager of Vacation Tours of the Rock Island Railroad. Mr. Wootton was passing through town with his friend, Barridge D. Butler, owner of WLW, the Prairie Farmer Station with new \$250,000.00 transmitting equipment in Chicago. He is also connected with KOY of Phoenix. Mr. Butler was interested in having literature on the White Sands, so I sent him all I had and then turned him over to Leo McLatchey of the Regional Office. Mr. Wootton expects to put a White Sands window exhibit in the Rock Island offices in Chicago this spring so we are calling on Fanning Hearon in the Washington office for help on this project.

Another interesting and interested visitor was U. R. Beeson, assistant state superintendent of schools for New Mexico. Mr. Beeson does most of the field work for the State Superintendent's office, carries with him movie reels, and lectures to school children on things of interest in the state. I am delighted that he likes the Sands and that he expects to come and visit us on our annual playday, March 26.

WHITE SANDS (CONT.)

We also had a fine article in Desert Magazine, published in El Centro, California. Louise Rutz of Las Cruces was the author.

These four were probably our tops in publicity contacts for the month, although in Chamber of Commerce circles, in state and local papers, we received much favorable comment.

Spring parties are beginning at the Sands. Last week a car load of visitors from Ohio and another from Pennsylvania stayed over night at the turn-around and wrote in the registration book that they stayed over night to see the sunset and the sunrise and they were beautiful, but their water supply froze up. Nearly every warm night now has its party and the meager supply of wood that Joe tries to keep at the fire places is usually gone in the morning.

Reverend Stradley of the First Methodist Church informs me that on Monday, March 21, his organization will hold the Pastor's Retreat at the White Sands. This meeting is to be in commemoration of the two-hundredth anniversary of the founding of the church and at least 50 ministers should be in attendance. No one but ministers will be there.

On March 26, the Chamber of Commerce will be host to the school children of all the surrounding country, in their annual Playday at the Sands. County School Superintendent Briscoe says that at least ten schools are already preparing their folk dances; W. G. M. Buckish, superintendent of schools on the Mescalero Indian Agency, will have his boys there for the Indian dances around the camp fire, while the Alamogordo school will have its 100 piece band in uniform. Spontaneous athletics will furnish the bulk of the program.

On April 17, the ministers of the surrounding communities will hold their sunrise service in the Heart of the Sands. Last year there were 75 cars there at sunrise.

The prospects are that we will have a reasonably busy time at White Sands through the spring season.

State engineers are flagging the proposed highway in front of the main building and on for 22 miles toward Las Cruces. If these flags and the "blue tops" mean anything, I presume the last gap of this road will soon be called for construction.

So it is all good news from the Sands this month. Even the White Sands Theater has been unusually kind to us. Dr. Potter, our "special" geologist, went to the picture show one night, all unthinking that it was bank night, of course, and the management called him to accept a gift of \$100. The Doctor is rather straight-laced as you know, but Jim and I finally prevailed upon him to take it. The Doctor will no doubt bear witness that we are kind to our technicians.

WHITE SANDS (CONT.)

Incidentally, I might say we all did pretty well in the current issue of The Desert Magazine, getting about four articles or notices in it. Natt Dodge's picture of the P. Weaver inscription on the wall of Casa Grande is fine, and we appreciate Mr. Henderson's articles very much. We would like to set the record straight by saying that Art. Woodward's "Major Pinkley" doesn't exist. The Boss was once a corporal, a position so low you have to look up to see a private. He wouldn't object to that because you will note what a rare title it is, whereas you can't throw a brick into a crowd without injuring two or three majors and colonels. Aside from that, Art. had a good article on Weaver.

Right now things must be badly upset at the sands, but when we get the new paved road running past our new buildings and thus get the traffic somewhat under control, one of the busiest men in the Southwestern Monuments will be Jim Felton at White Sands.--F. P.

*****SWM*****

WHITE SANDS RANGER REPORT

By James Felton, park ranger,
Alamogordo, New Mexico.

TRAVEL

A few more visitors have been noticed this month than in January; however, the number registered, 1,029, is 14 less than those registered last month. The count goes up, for 2,852 people in 878 cars were checked coming into the white sands via the monument highway. If we double these figures for the visitors on Highway 70, it gives a total of 5,704 people in 1,756 cars. Mr. Shepperd kept the travel count on the days the ranger was with Dr. Potter. Many out-of-state visitors were here this month going to Arizona and California for the winter. They could be classed as better than average "dudes", and were especially interested in learning something of the origin of the Sands.

CONSTRUCTION:

Doors are being installed in the museum section of our administration building. With the exception of light fixtures, the ranger's office, file room, and custodian's office are finished. Some painting remains to be done in the two exhibit rooms. We understand that it will be necessary to pour four-inch concrete bases for all the museum cases, so this work will delay the finishing somewhat.

In the utility area work progressed rapidly. Our walls and fences are nearly finished. All the anobes are laid, only plastering remains to be done. How about opening with a rodeo? Steel windows and frames are going into the oil-gas house as well as in the power house. The laying of conduit and ground cable is practically complete in all the buildings with the exception of the residences. Perhaps the electric

WHITE SANDS RANGER REPORT (CONT.)

plant will be in operation before the end of the next report period.

If the project had a supply of tile, the floors could be finished in residence number two. Not having this material, work has been held up until concrete as a substitute is approved; also additional oak flooring will have to be purchased before the bedrooms in residence number two can be finished.

LANDSCAPING

If you wish your monument landscaped, contact the RD. That's a job these boys really do. They have planted ten acres of native grass, cactus, and desert shrubs. Eighty cottonwood trees have been set out around the buildings. Some planting was done at the lake in the vicinity of the Garton Well.

CO-OPERATING AGENCIES

During the last two weeks, one of Mr. Stephen's crews located quantities of mineral water within a half mile of the headquarters which might do for plants and sanitation. In 1911 Mienzer of the USGS made a survey of the water resources of the Tularosa Basin, and his report stated that there was no potable water from wells in this region. To date no one has proved him wrong.

IMPROVEMENTS

The well at the old Dewey place (Adobe Walls) was cleaned out and a larger water hole developed. Some second-hand timbers were used as cribbing, and we now have a pool some six feet long and one foot deep open to our mammals and birds. This spot is about ten miles from our entrance and unfrequented by visitors. Precautions will be made to make the water unavailable to stock.

WEATHER

A program consisting of three weeks of late spring weather and then back to winter conditions has had us a bit upset over here. There were a few days during the warm period when high winds made conditions disagreeable. The spring weather on two Sundays brought us many visitors, as on January 30 there were 82 automobiles bringing 364 people into the monument on the black-top highway. The skies are now clearing after four days of stormy weather. The surrounding mountains are covered with 30 inches of snow, and Sunday evening snow flakes were falling at the turn-around. Some of the snow remained until the next morning. In all, the precipitation might be estimated as one inch for the month.

ROADS

Highway 70 to the west is rough for a distance of 50 miles. Heavy

WHITE SANDS RANGER REPORT (CONT.)

construction on this route near Hondo may divert some traffic from us. Within the monument, winds drifted large quantities of sand on the road, but this was removed by the maintenance man as rapidly as possible.

PARK SERVICE VISITORS

Lyle E. Bennett, Charles Richey, Dr. F. C. Potter, and J. E. Kell.

SPECIAL VISITORS

Mr. and Mrs. Frederic K. Vreeland and children spent most of January 25 in the White Sands. They inspected our new buildings before going on west.

Twenty-six students from McMurray College, Abilene, Texas, who were on a glee club tour, frolicked in the sands January 31.

GENERAL

Soon after dark on January 22, Mr. and Mrs. Sterner of New York City knocked on the ranger's door. It seems that we still have a touch of the Wild West out here, for the couple were seeking protection from bandits. Mrs. Sterner was semi-hysterical from fright, and Mr. Sterner was considerably excited. Under our roof they soon regained some of their composure, but insisted upon spending the night with us unless they could get some kind of an escort into Alamogordo. Not that we wouldn't have enjoyed having overnight guests, but we made up the military escort and reported the case to the local sheriff's office.

The details are something as follows: Leaving Alamogordo about three o'clock in the afternoon, the Sterners drove out by our headquarters area and made the drive into the Sands. Some fifteen miles toward Las Cruces and in the Pass, the road was pretty well blocked and torn up by oil tankers that were stuck in the mud. A few travelers were making an attempt to go around the trucks, and with the aid of others, some managed to pull around and continue westward. The Sterners, not to be outdone by their fellow travelers, tried the track around only to find that they were fast in the mire. Three young men very graciously offered their assistance and managed to get the car on firmer ground. Our New York friends turned around planning to return to Alamogordo for the night, and were soon passed by the same three helpful young fellows. Farther on down the road they proceeded to block the highway and were signalling for a stop when the Sterners arrived on the scene. Thinking that this was their opportunity to return the favor of a few minutes before, the Sterners stopped. Coming toward the car one of the fellows pulled his cap down, reached in his pocket, and said, "Say, bud". Sterner seeing a car approaching and sensing a precarious situation, said, "Let me pull ahead, so this fellow coming can get by". That seemed to be agreeable, so he pulled ahead, stepped on the gas, and drove as

WHITE SANDS RANGER REPORT (CONT.)

fast as the wet highway would allow. The would-be highwaymen jumped in their car and followed the Sterners in hot pursuit and a wild chase back to the junction of 70 and the monument highway. The bandit car went on toward Alamogordo, and the New Yorkers to the light in our quarters for aid in staving off the holdup.

Of course, this all sounded a bit "fishy", and the ranger was inclined to think that the Sterners were suffering from the effects of a most vivid imagination since there hadn't been a shot fired, but guess they had reason for flight after all, because we later learned that there had been another holdup in the Pass that night, a car stolen previously in Las Cruces, and the suspects were trailed through Alamogordo and Carrizosa and the car recovered farther North. Anyone wishing a little color of the "old days" come on over. We'll try to accommodate you.

Dr. F. C. Potter, geologist, of Washington, D. C., arrived early the morning of January 31. It fell my job to show the Doctor around. This is a bit of a joke for, if anything, Potter took me over more of the Tularosa Basin than Tom Charles has seen in his thirty years here. We ranged from the top of the mountains on the east to the foot of the San Andreas on the west. The Doctor even went as far north as Gran Quivira, and samples were taken of the Red Sands to the south.

Our travels within the monument boundaries were extensive. We gathered sand, crystals, and pebbles from nearly every square mile. There were no dunes too steep to drive over or alkali flats too wet to push through. The first week we were stuck somewhere on an average of one to three times a day. All told, Potter gave me more experience getting cars out of holes than I have had in my lifetime. Record length of time in one hole was two hours. Finally we carried planks as a part of our equipment--just in case. If our cars collapse now, Boss, you'll know who is to blame. For the next Washington expert, let's get some horses; but, you know, there's something attractive about a sand flat or a mud hole when "Doc" is around. In my opinion he qualifies as an all-round Westerner, so treat him rough over there at Headquarters. He can take it!

During the month, an official trip was made to Carlsbad Caverns National Park. Now the ranger will be able to converse on equal terms with the "cudes" about one of the largest caves in the world. Many thanks are due the park personnel at Carlsbad for an interesting and worth-while visit.

*****SWM*****

Tom and Jim make, as you see, a right good team for reporting. Tom takes the outside field and Jim the monument and we get it all. One of the good by-products of Dr. Potter's visit was the chance it gave Jim to cover the surrounding country and get really acquainted with the geo-

WHITE SANDS RANGER REPORT (CONT.)

logical and geographical details. He is now much more valuable as a guide at white Sands. We might say that Doctor Potter arrived at headquarters after leaving the Sands and spent a week working out the basic ideas of presenting the geologic information of the White Sands to the public after which he left for the Washington Office to work up the details.--F. P.

*****SWM*****

CHIRICAHUA

By Frank Fish, custodian,
Douglas, Arizona.

Visitors this month, 402; total since October 1, 2,694.

The first half of February and the last week of January was dry with a cold southwest wind prevailing. The only moisture for this period occurred February 1, with a light rain from 7:00 P.M. to around midnight. Rain on February 10 turning to snow early in the morning of the 17th and then rain and snow on the 19th damaged things generally through this area. The Chiricahuas south of the monument from the 8,000 to 10,000 feet elevations received a heavy blanket of snow. Temperatures dropped after the storm and, according to Ed. Riggs at the Faraway Ranch, we had our coldest night for the year on the 17th. (around 14 above zero).

Approach roads have been maintained in excellent shape considering the weather conditions. The road over the Chiricahuas to Rodeo, New Mexico, has been open at times but was not safe to travel without chains. Local people are using this road more frequently for entrance to Rustlers Park to enjoy winter sports in the higher elevations. There is a small pond up there and ice skating is becoming popular although only one pair of skates appears to be available in the entire southern part of Arizona. At least when one skates he has an audience, although from reports, a good bit of the skating was done where the skates don't fit. Anyway, the above mentioned road probably will have a good many boosters for future improvements.

Improvements are progressing east of Willcox on the road to Lordsburg, New Mexico, and surveys have been completed on the re-alignment of this road between Willcox and Benson.

Visitors show an increase over last year; comparative figures follow:

	<u>Cars</u>	<u>Visitors</u>	<u>Out-of-State</u>	<u>Total Stay</u>
1938-----	114	402	153 or 38%	17,535 minutes.
1937-----	59	205		
Increase----	55	197 or 96%		

CHIRICAHUA (CONT.)

GUIDE SERVICE

<u>Parties</u>	<u>No. Att.</u>	<u>Time</u>	<u>Av. Att.</u>	<u>Av. Time</u>
51	200	2270	3.9	56.2 min.

Twenty seven states, the District of Columbia, Denmark, and Belgium were represented on the register.

John Ball of Bisbee was in January 29. On the same day Pay Reche, SCS Geologist from Albuquerque, New Mexico visited the monument.

On January 30, Hunter Stratton and Murray Riggs tried horseback parties from Massai Point but, due to inclement weather conditions, it was considered better to postpone starting until warmer weather.

NATIONAL PARK OFFICIALS

Dr. Gould and Dr. McDougall were in the morning of February 3 for a short stay. It was hoped their stay would be longer as it is desired to have many of the problems on geology and wild life cleared up.

MISCELLANEOUS

The uniform distress signal received during the month was placed at Massai Point.

Five house cats were killed during the month around the fringes of the utility and headquarters area.

Preliminary studies for making the fire atlas have been carried out, but it will be necessary to await arrival of more topographic maps before completion.

Manzanita buds are appearing on bushes at lower elevations and sheltered areas.

A number of recent insect-killed trees have been noticed in the yellow pine north of the monument but inside of the proposed addition.

Maintenance and CCC activities will be found under Mr. Stevenson's report.

*****SWM*****

We picked one interesting observation out of Frank's diary which he did not get into his report. It was to the effect that a Michigan woman considered a four-foot trail too narrow around some of the points for horseback trips. Another item was that Carroll Moore, or Willcox lost his gold watch: "Found it after looking for more than an hour."

CHIRICAHUA (CONT.)

It will be noted that we are experimenting with horseback trips at Chiricahua. We think there is a possibility that visitors at that monument can be persuaded to ride, thus seeing much more without getting too tired in the process. No permit will be issued until our experiments show the need for one. For the first year at least the permit would cover only such temporary arrangements in the way of corral, storage, hitching racks, etc., as could be removed in a few hours if the idea seemed to be a failure.--F. P.

*****SWM*****

CHIRICAHUA CCC

By William Stevenson, project
superintendent, Douglas, Ariz.

One crew continued work on the backsloping project. Four hundred square yards of new benches were sloped two miles north of the intersection of Pinal and Sugar Loaf Truck Trail. Materials were utilized in surfacing and widening fill slopes.

Highway maintenance was light during the month. Thirty man days were spent on snow removal and one quarter mile of Sugar Loaf Truck Trail was surfaced.

A total of two miles of horse trails were maintained including the section from Massai Canyon to Massai Point and from Massai Canyon to Echo Point to Rhyolite Canyon. These sections were backsloped, resurfaced, and drainage corrected. Overcast materials were cleaned up.

The Employee's Residence is 90 per cent complete. Flooring has been laid this month and doors are now being hung. Painting is also under way.

Extension of Utility Area is 40 per cent complete. Approximately 200 cubic yards of material have been moved to date on this project. The Masonry Wall which is being constructed in connection with this project is 30 per cent complete.

Work continued this month in the rock quarry.

*****SWM*****

Bill's camp seems to have had a pretty good month of working weather and to have put through a considerable amount of work. We have hit him hard, financially, by drawing the side camp out for work at Casa Grande and we are not yet sure we can stand that extra expense.--F. P.

*****SWM*****

WALNUT CANYON

By Paul Beaubien, jr. park arche-
ologist, Flagstaff, Arizona.

Visitors this month, 127; total since October 1, 2,013.

February was a short month to be remembered for its many snows and sloppy roads. Only 127 visitors reached the canyon, and several parties had to be helped from the mud. With the use of tire chains, the roads were always passable, but it was necessary to use low gear now and then.

I was away on annual leave more than a week, and missed some of the visitors.

Mr. and Mrs. Erik Reed were here on February 16 and 17, and again the 20th.

Gordon Vivian stopped by the 20th and left a milk can.

I made only one trip to Wuptaki, where I found that 39 visitors had registered at Citadel Ruin, and 25 at Wupatki Pueblo.

During the month, some snow was shoveled into the cistern, the approximate north boundary was located in order to erect boundary signs, quite a bit of time was expended in painting signs, and several letters of inquiry from prospective visitors were answered. Five cars were extricated from the mud.

BIRD BANDING AT WALNUT CANYON

Following are some bird-banding compilations listing birds which returned to the station during October and November, 1937:

Species and Band Number	First Trapped	Last Trapped	Return Date	Total Times Trapped
<u>Chestnut-backed Bluebirds</u>				
34/175866	11-24-35	10-29-36	11-5-37	4
36/148048	11-15-36	10-21-36	10-22-37	3
37/44010	12-20-36		10-22-37	2
37/44024	12-22-36		11-14-37	2
37/44034	12-23-36		11-30-37	2
<u>Crossbills</u>				
35/219972	9-21-36		11-14-37	2
36/148078	12-19-36		11-14-37	2
<u>Rocky Mountain Nuthatches</u>				
36/23018	11-20-36	1-18-37	11-21-37	3
36/23023	11-20-36	2- 4-37	10-23-37	4
36/117902	12-22-35		11-21-37	2
<u>Western Robins</u>				
37/204301	12-20-36		11- 5-37	2
37/204302	12-21-36		10-22-37	2

WALNUT CANYON (CONT.)

Pygmy Nuthatches

34/69946	-----	10- 7-36	-----	2-12-37	---	11-20-37	---	7
34/69952	-----	10- 7-36	-----	2-18-37	---	11-20-37	---	14
34/69950	-----	10- 7-36	-----	2-18-37	---	11-20-37	---	8
34/69961	-----	10-29-36	-----	2-23-37	---	11-14-37	---	6
35/17939	-----	11-15-36	-----	1-15-37	---	10-22-37	---	7
36/13754	-----	11-11-35	-----	1- 5-37	---	10-22-37	---	7
36/13757	-----	11-11-35	-----	2-24-37	---	11-21-37	---	8
36/13787	-----	12-22-35	-----	12-20-36	---	11-30-37	---	5
36/75153	-----	12- 6-36	-----	12-20-36	---	11-20-37	---	5
36/75105	-----	12-27-36	-----	1-25-37	---	11-14-37	---	6
36/75116	-----	12-28-36	-----	2-24-37	---	11-21-37	---	5
36/23046	-----	11-25-36	-----	2-22-37	---	11-14-37	---	13

Some of the above were "returns" in the autumn of 1936 and were reported as such at that time.

*****SWM*****

Paul's report this month is rather telegraphic in its length but it is packed full of information. It seems a little strange that these boys yowl to heaven because a headquarters man doesn't come around about once a month and sit down and talk things over with them, but when they are placed before the typewriter and asked to talk things over with headquarters, they dry up like a powder house and pass up the chance. The monthly report should not, after all, be such a big job if one keeps a diary as has been suggested.

We are glad to welcome Mrs. Erik Reed among the Southwestern Monuments and hope we see her often. Congratulations to Erik and the best wishes of all our crew to both of them.--F. P.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian, Moccasin, Arizona.

Visitors this month, 80; total since October 1, 640.

I surely don't feel anything like making out a report today. I want to be outside digging in the ground instead. Guess it is the spring fever that has hit me again, for this is the third time I have started the report this morning. Hope it goes through.

WEATHER

The weather for the past 30 days has been a mixture of spring and winter, being more on the spring side than the winter. Some days were cold and blustry with the following day as nice as any spring day you ever saw. We have still, on the north sides of the buildings and hills,

PIPE SPRING (CONT.)

patches of snow and some ice that we are thankful for as it is holding back the buds which are commencing to swell.

Days clear, 15; Days cloudy and stormy, 12; Days partly cloudy, 3.

TRAVEL

During the month our visitors have been somewhat fewer than last month, though they have been as interested in the place as any, and my SWM 16 shows the following:

GUIDED VISITORS		UNGUIDED VISITORS OR USERS OF MONUMENT	
Visitors- - - - -	39	Visitors- - - - -	41
Parties - - - - -	21	Parties - - - - -	15
Average persons to party- - -	1.0	Average persons to party- -	2.7
Total minutes of visitors - - -	578	Total stay on Monument- - -	340
Minutes per party - - - - -	-27.5	Minutes per party - - - - -	-22.6

BIRDS

The bird banding has been carried on throughout the month showing the following results:

	<u>NEW</u>		<u>REPEATS</u>		<u>NEW</u>	<u>TOTALS</u> <u>REPEATS</u>
	<u>FEBRUARY</u>	<u>PREVIOUS</u>	<u>FEBRUARY</u>	<u>PREVIOUS</u>		
Gambel Sparrow	68	212	110	201	280	311
Song sparrow	1	12	9	30	13	39
Shrike	1	1	1		2	1
Red-shafted Flicker	1				1	
Total- - - - -	71	225	120	231	296	351

I have also noticed the following birds here: raven, meadow lark, Mountain Bluebird, Spurred Towhee, Green-backed Goldfinch, House Finch, song sparrow, Gambel Sparrow, shrike, juncos, Red-shafted Flickers, Western Robin, Pinyon Jay, and several varieties of hawks flying overhead.

ANIMALS

I have noticed the past month that the cotton tail rabbits, large grey squirrels, and the chipmunks have made an increase on the monument, and I hope that we can keep them satisfied with their stay here.

MAINTENANCE

My work for the most part has been as varied as the weather, doing bits of work of most every thing and not a lot of any one thing.

I spent most of the day February 15 getting 37 wild rose roots at

PIPE SPRING (CONT.)

Moccasin and setting them out at the head of the meadow and, on the 16th, I set out 13 plum trees also along the head of the meadow where the old ones have died. There are a few more that I want to get out this week.

I have also done some clean-up of the dead weeds and leaves from along the side of the roads and camp ground, and have cut out a lot of the suckers from the cottonwood trees on the east side of the meadow. There are a lot more of these suckers that I had thought when I started to cut them out. I am leaving the largest one about every three or four feet.

PREDATORS

I have caught and killed two house cats this month, the ones that have been raiding my bird traps in the past. They are some of the ugliest cats I ever saw. I believe they are from the old cat that Frank Harris (an Indian) left when he died several years ago. He lived just north of the monument.

PUBLICITY FOLDERS

Some 200 of the Southwestern Monuments folders were received the latter part of January. I think they make a fine publication and will do a lot of good.

MUSEUM ACCESSIONS

February 8, while I was at Moccasin getting some chains and a block and tackle, Mrs. Maggine Heaton gave me three pieces of old pioneer relics that were used back in the early 80's by the Mormons in Orderville, Utah: one broken flatiron handle; one earthen platter with a corner broken off; one old wooden butter bowl; and one Piute Indian basket which is believed to be the first one made of this style and type. I also took back to the monument an old cook stove that was brought in here about 1886 and has been used by all who have lived here since. My wife and I were the first to discard it as the fire box was burned out. The last several years it has been used by different families and now it is back to stay.

CCC WORK

The CCC gave me the use of five trucks and about fifty men on the third and fourth to haul dirt into the wash. There was too much mud for them to get out on their own jobs and they wanted something to do, so I was glad to have them work on the monument. There has been no other work by them on the monument this month.

NEW CONSTRUCTION

Approval and blueprints were received for the construction of two

PIPE SPRING (CONT.)

pit toilets this month, and the bill of materials was given to the Project Superintendent with a request to purchase this material next month.

I believe this covers all the main points of work and things of interest for Pipe Spring for February, so I will sign off for another month.

*****SWM*****

It looks as if, for a winter month, Leonard has been pretty busy. The whole Southwest seems to have had the same open winter about which he speaks. In a great many places it is not an unmixed blessing, for it is likely to make short feed for the cattlemen and low water in some of the reservoirs.

We are glad to note that Leonard is gathering in some of the old things for his museum. That period of the sixties, seventies, and eighties up through that country is an intensely interesting period of western pioneer history.--F. P.

*****SWM*****

GRAN QUIVIRA

By George Boundey, custodian,
Gran Quivira, New Mexico.

Visitors this month, 135; total since October 1, 848.

This has been a month of high winds, much dust, and extreme cold. Owing to elevation and the fact the ruins are not protected in any way from high winds, the winter time is always a difficult time in which to look over ruins. Almost every party expresses a wish to return again during summer months. After a brief inspection of the ruins, the talk is usually continued around our fire in the living room.

As we have always kept posted on road conditions thru radio and local trucking, we are a point of call for most cars bound south or east. Lately we have had unfavorable reports of the road to the south by way of Carrizozo, so I made a trip as far south as Alamogordo. I found the road is being straightened over much of the way between here and Carrizozo. Fence has been built in places on both sides of the right-of-way, but not even a scraper has gone over the road to level off the bogs.

I have done some work on the road between the ruins and the village during the month, getting it in shape for the spring rains which should come later. So far there has been very little moisture; all cisterns in the valley are empty except ours and many ranchers are hauling stock water from Mountainair.

GRAN QUIVIRA (CONT.)

Dr. F. C. Potter, geologist from the Washington office, visited us on the ninth. He was on his way south to do some research work on the White Sands National Monument

Through some mistake, a package for the monument was sent to Willard. I took a visitor, Mr. F. M. French, with me and we visited the old Mission of Curai and also the apple orchard at Manzano. The excavation done last winter at Curai is causing the walls there to deteriorate very fast and vandals have done much damage to the buildings.

Visitors to the local church on Sunday often come to the monument to eat their lunches. I have provided a place west of the pump house where fires may be built and where more shelter from the winds may be obtained. This does away with children climbing about among the walls of the Mission.

We have stopped the feeding of the birds but their numbers seem to be on the increase rather than on the decrease.

The monument here is a haven for rabbits of which we have four kinds. By careful observation I am convinced that the summer increase among the rabbits is well taken care of by the owls, bobcats and coyotes during the winter months.

Our monument, being fenced, is an oasis in the midst of a much over-pastured grassland. When every staple is in, our fences are proof against sheep, but the boot of a Mexican sheep herder can keep a man most awful busy several hours each day when the spring grass begins to come. There are times when about the only way one can hold his own is to put out a few signs of "Poison out for Squirrels". Even a Mexican sheep herder seems to be able to read that.

*****SWM*****

Mr. Boundey, in speaking of the better grass inside his fence, reminds me of the first trip I made back to Gran Quivira after we put up that fence several years ago. From five miles up the road, where you get the first view of the monument, you could actually see where the fence line ran by the difference in the color of the green grass inside from the grazed ground on the outside.--F. P.

*****SWM*****

TUMACACORI

By Charlie Steen, junior park
archeologist, Box 2225,
Tucson, Arizona.

Visitors this month, 1,795; total since October 1, 6,288.

Travel to Tumacacori was considerably less for the past month than

TUMACACORI (CONT.)

for February, 1937. The visitor count totaled 1,795 in comparison to 2,864 for 1937. Of this month's visitors, 1,516 were guided through the mission and 279 used only what we jokingly call the facilities or looked around without an escort.

Custodian Caywood is taking some sick leave so that he can get his innards straightened out and will be off duty for approximately a month. Reports from Nogales yesterday were to the effect that he is doing very well.

Park Service visitors for the month include Dale S. King who brought his brand-new bride: lotsa fun trying to catch the train at Nogales. When last seen, the Kings were on board El Costeno trying to convince everyone that they should be there and mentally cursing the fellow who invented time zones. Luis Castellum was in for an hour one Sunday.

Newsworthy visitors during the month included Miss May Pershing, sister of General Pershing, former Vice President of the United States Charles G. Dawes, and those honorary members of the Service, Mr. and Mrs. John East of Oak Park, Illinois.

Two very important accessions for the new museum were obtained from Mr. J. B. Bristol of Nogales, Arizona: a Pima or Papago thrashing paddle and bread board, both of mesquite wood. These were found by Mr. Bristol several years ago in the Planchas de Plata Canyon, Sonora, Mexico, and were on display at the Chamber of Commerce office in Nogales. Caywood was very much interested in them and Mr. Bristol donated them to the museum. Original material of this sort is needed here. The paddle we have now is much better and more interesting than the full-scale model which was made in Berkeley.

Weather until the seventeenth of the month was very pleasant but on that day it changed. Rain, and snow, and the temperature all fell; cold weather prevailed for a few days but the sun is shining again and the last two days have been quite warm.

Bird banding and observing this month brought some interesting results. Of almost 450 birds handled, 117 new birds were banded and 11 taken as returns. One interesting return was a Green-tailed Towhee banded March 31, 1936. This Towhee is a rare winter visitor. New birds banded include the following:

Arizona Cardinal	4	Pyrrhuloxia	8
Gambel Quail	15	Palmer Thrasher	1
Canyon Towhee	2	Rock Wren	1
Gambel Sparrow	84	Brewer Sparrow	1
Lincoln Sparrow	1		

TOTAL - - - - -117

TUMACACORI (CONT.)

We were pleased to hear that General Dawes dropped in at Tumacacori. We think of him as one of the outstandingly pleasant visitors at Casa Grande where he visited a year or so ago. He is very well read in history and archaeology and was an understanding and sympathetic listener. We were especially tickled at his one rejection of some rather simple theory which we offered him. We have forgotten what it was, but he said quite frankly that he didn't believe a d----d word of it and we would just have to produce something better before he would agree with us. He held his party here an hour past lunch time regardless of some yowling, but, quite characteristic of him I am sure, wanted to quit at once when one of his hungry party pointed out that he was keeping the guide from his lunch.--F. P.

*****SWM*****

EL MORRO

By Robert R. Budlong, custodian,
Ramah, New Mexico.

Visitors this month, 50; total since October 1, 590.

This has been a very quiet month, and consequently there is but little to report.

TRAVEL

A total of fifty persons visited this monument during the travel month. All who registered were contacted. Trips were made as follows:

Trail (unguided; by permission): Trips, 1; total persons, 2; total time, 135 minutes.

Inscriptions: Trips, 16; total persons, 45; total time, 875 minutes; average persons per party, 2.8; average time, 54.7 minutes.

Office: (educational): "Visits", 6; total persons, 19; total time, 350 minutes; average persons per party, 3.2; average time, 58.3 minutes.

People continue to drive in, inspect the inscriptions, and drive out again without coming to the office. The north side is patrolled regularly whenever there is heard the sound of a motor that can't be immediately located; and on days when weather is good, periodic trips are made around the point and on the north side on general principles. Tracks were observed on two occasions where people had come in without coming to the office, but in neither case was the custodian able to contact them.

This time last year we were well snowed-in, with no visitors except the intrepid Mr. Charles Carter, who came down on official

EL MORRO (CONT.)

business, so we can show quite an increase in visitor travel. This, of course, is due to the open winter we are having.

WEATHER

At last we are having a touch of something approaching cool weather, though temperatures are still far above normal for this time of year. Lowest to date (at the airport, about five miles distant) was ten degrees below zero, February 18. Compared to last winter, that is pretty warm -- almost hot, in fact.

The past five days we have had snow, but today the sun is out again and the snow is melting rapidly. That does not improve the roads. No accurate measurements of snowfall were made, but between eight and ten inches apparently fell within the past week.

Today's mail brings me notice that our weather bureau instrument shelter and rain gauge are in Gallup, so I shall drive to town and get them in the morning, roads and weather permitting. The instruments were also received. We greatly appreciate the Weather Bureau's sending us these instruments, for now accurate weather reports may be kept here.

On the morning of January 22 at 4:00 A. M., I noticed a fine display of the Aurora Borealis in the northern sky. I awakened the HCWP to see it. It was a great flare of cerise light, extending high into the northern sky and to the west until The Rock hid it from sight. The color soon faded, with a long streak of white light extending toward the south for some time. We knew something was unusual in the atmosphere by the way our radio had been behaving for several nights.

ROADS

Roads in general have been kept open fairly well with the exception of a few days when snow or rain turned the adobe into mud. Ah, this El Morro mud! Like El Morro National Monument, there's nothing else quite like it in the entire United States. We put chains on our car wheels, travel cautiously in low and second gears, and if we reach our destination eventually, we're greatly surprised. However, today the sun has been shining and roads are drying appreciably. It only takes an hour to go a mile now.

INSCRIPTIONS

Some work continues on these, but mostly on the south side where it isn't quite so cold. The major ones were all completed (for winter) last month, as reported, but on warmer days the search for others goes on. It's a risky business, however, when we have such extremes of temperature, as there are frequent rock falls. The Custodian wears a

EL MORRO (CONT.)

padded leather "crash helmet" at such times, but even at that he doesn't exactly relish working at the base of the high cliff when rocks are coming down. To date I have been missed almost entirely (with the exception of a few small ones); but if next month you don't receive a monthly report, remember the lines in The Mikado: "and he never will be missed" -- those rocks may get me yet. A few traces of new inscriptions have been found, but no complete ones.

MAINTENANCE, ETC.

Considerable work was done during the early part of the month continuing with the grading of the monument roads. More high centers were removed, but frozen ground prevented the completion of this work. The fill where the big arroyo used to be on the south side of the rock has received considerable attention also. Small gulleys continue to begin to form in the soft sand, and these have been checked. Indians and others driving wagons now and then insist upon turning from the road and driving up the fill before we can see them and turn them back on the road. As a consequence, deep wheel ruts are made in the soft sand, and these are ideal for the formation of arroyos with the first run-off of moisture. These ruts are kept filled as fast as they are made. Warning the Indians does little good.

The fence was repaired at one point on the north side where the wires run around a tree. Missing wires left a space large enough for stock to enter. This was repaired.

AUTOMOTIVE EQUIPMENT

The truck is running splendidly, but this month has been giving poor mileage, and the trouble was hard to find. Eventually it was traced -- there were two gas leaks. One was in the main fuel line, under the chassis, and this was repaired, but the other eluded me for some time. Eventually that was found -- moisture from condensation in the tank would be caught in the fuel pump sediment bowl, and would, of course, freeze. The ice was removed from time to time, but evidently when the bowl was replaced, some ice fragments would be caught under the washer. The thing didn't leak until the engine had warmed up, and then the gasoline would run merrily from under the edge of the sediment bowl. Upon cooling, the moisture apparently froze again, and the joint seemed tight. We have had no further trouble now that this has been fixed, but it had us fooled for a long time. Keeping the gas tank filled is a good way of reducing the amount of condensation, incidentally.

WILDLIFE

Some time ago the State Fish and Game Commission was contacted and inquiries made relative to re-stocking the monument with Scaled Quail. No quail have been seen in the neighborhood since we came here, but to

EL MORRO (CONT.)

date we have found one person who remembers having seen a covey within the past five years. Old-timers say quail used to be rather plentiful years ago. A recent letter from the Commission advises that a dozen or more pairs of breeding birds will be shipped us in March or April. We hope the experiment may prove successful.

WELLS

During the month a scouting trip over the surrounding country was made to locate nearby wells and to obtain data on them. An aerial map was photographed and enlarged in order that we might have a map, and the wells were spotted-in on this. Data on each well (depth, strata encountered, flow of water, etc.) was obtained from the well-drillers, finally, and the report sent your office.

RADIO BROADCAST

Data on a proposed broadcast featuring this National Monument was compiled during the month and sent the Washington office. (Ed. note: A portion of this data appears on page 157 of this month's Supplement headed, "Major Inscriptions on El Morro".)

*****SWM*****

We are glad to get the information on the leak at the sediment bowl on the pick-up. The same thing is happening, no doubt, on other cars in the upper country and we will warn those whose car reports show bad mileage to be on the lookout for such leaks. Incidentally, we might say those car reports, which caused more or less groaning and protest when they went into use, are proving very valuable both from the headquarters standpoint and from that of the field men.--F. P.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 836; total since October 1, 3,790.

GENERAL

Again we score an all-time high record in travel for the month of February, 1938, showing a net registered total of 836 people in 239 automobiles. This is an increase over February, 1937, of 622 people.

The approach road to this monument has been well maintained by the State Highway Department during the month. The new graveled road has settled and packed almost as hard and smooth as pavement. The New Mexico ports-of-entry have registered more than 100% increase in out-of-state cars during the months of January and February, comparing

AZTEC RUINS (CONT.)

with the corresponding period of last year. Much snow has been experienced in the higher altitudes in Colorado. Wolf Creek pass has remained open and the roads in general in northwestern New Mexico and Colorado have been in better shape this winter than ever before in history. From all indications this will be the banner travel year for this monument.

Records reveal that we are handling a larger percent of visitors per man than any monument in the Southwestern group. It is hoped that the vacancy existing in personnel of this monument can be filled soon. It is impossible for one man to contact and render guide service to all the visitors that are coming to this monument even during the winter months. It is necessary to leave the museum unattended when the Custodian is in the field with parties of visitors. To date only one case of vandalism has come to my attention. This will be explained under a different heading elsewhere in this report. However, a live monument has its advantages; at least one does not have the time to worry about what the other monuments are doing.

WEATHER

Northwestern New Mexico has enjoyed the most delightful winter weather on record. While the amount of precipitation recorded this year is a little below normal and the stockmen and farmers may suffer from that later on, it is believed that this part of the country is in better shape than it was this time last year. The trees have begun to bud and the grass is getting green in places, which would indicate that spring is right here upon us.

WEATHER STATISTICS

Maximum temperature-	- - - - -	59 (February 10.)
Minimum temperature-	- - - - -	7 (February 7.)
Total precipitation-	- - - - -	.89 inch. (Greatest amount recorded in 24 hours, .23 inch. February 2.)
Cloudy days-	- - - - -	15
Partly cloudy days	- - - - -	6
Clear days	- - - - -	9

Two inches of snow fell on February 20. Patches of snow can be seen on the north sides of the building at the time of this report.

ACTIVITIES OF OTHER AGENCIES

The district meeting of the American Legion and the American Legion Auxiliary held Monday, February 14, at Aztec Ruins, was well attended and proved to be an interesting affair.

The conclave started in the afternoon with a parade headed by

AZTEC RUINS (CONT.)

the Post colors of San Juan Post, Aztec. Veterans and Boy Scouts marched to the music of the Aztec High School band.

The visitors were then conducted through the ruins, including the museum, reconstructed kiva, and underground rooms of the ruins.

Following the dinner at the Methodist Church basement, in the town of Aztec, the Legion and Legion Auxiliary members returned to the monument. The ladies held a brief business meeting in the museum and then joined the men in the Great Kiva to listen to state speakers. The meeting adjourned at 11:15 p. m.

At this time I wish to thank you for sending Custodian Faris and Custodian McKinney over here to help me handle this convention crowd. It was necessary to work these boys 18½ hours on February 14 in order to take care of this party.

VANDALISM

On February 12, I received a small package, addressed Astec Ruins, New Mexico, mailed from Rose Mead, California. The package contained a small pottery vessel belonging to this monument. While the museum catalogue number had been erased, it was still possible to read the number with a glass. The number is H-243. There was no return address, or word of explanation. Obviously it was taken from this monument during the month of August of last year.

NATIONAL PARK SERVICE OFFICERS

Mr. and Mrs. Charles D. Carter were here January 26. Charles Richey, Mrs. Jerome Miller, and Charles Carter of the Regional Office in Santa Fe were here February 15.

SPECIAL VISITORS

Carroll Thomas, State Scout executive, Santa Fe, New Mexico, was here January 29. John H. Holt and party, United States Indian Affairs, Washington, D. C., were monument visitors February 7.

RUINS REPAIR NEEDED

On February 10, while guiding a party through the ruins, I was about half way through the first story rooms when a large section of wall collapsed, the rocks rolling within a few feet of the party.

It is hoped that we can get part of this Mobile Unit in here soon to repair the damage, and it might prevent accidents in the future.

AZTEC RUINS (CONT.)

TRAVEL

Eight hundred thirty six people entered the monument in 239 automobiles coming from 24 states, the District of Columbia, and France. Travel for February, 1937, was 214 people. This comparison shows an increase of 622 people. Total travel since October 1, 3,790. For the corresponding period of last year, 2,537; an increase of 1,253 people.

GUIDE SERVICE

Total visitors guided through the ruins and museum, or both, 810.
Number of field trips - - - - -104 with 683 persons.
Number of Museum trips- - - - -111 with 709 persons.
Total guide time in field - - - - -3,730 minutes.
Total guide time in museum- - - - -2,910 minutes.

*****SWM*****

Congratulations to Carroll on the success of his Legion meeting and I am sure Johnwill and Lewis were more than willing to help out. All three boys being old hands in the Service, I am sure the little matter of an 18½ hour shift was taken in their stride, though we are glad Carroll spoke of it for we like to know when the boys have to put in an extra shift like that.

Arrangements are under way to set up a project at Aztec for the Mobile Unit and we hope to get at some of those worst spots before long.--F. P.

*****SWM*****

NAVAJO

By Milton Wetherill, ranger-
historian, Kayenta, Arizona.

Visitors this month, 3; total since October 1, 81.

February has been anything but pleasant in this part of the country. About half the days were cloudy and the rest partly cloudy with no clear days so far. We have had more snow in February than we had in December and January.

The roads have not been bad. The last mile is the only bad part, slick rock covered with ice and 12 to 14 inches of snow.

Trail work; About 50 yards of retaining wall built, several steep places cut down, and several low places filled, making a more uniform grade.

NAVAJO (CONT.)

BIRDS NOTED AT BE-TA-TA-KIN.

Woodhouse Jay	Mt. Chickadee
Gray Titmouse	Pinyon Jay
Canyon Wren	Western Robin
American Raven	Western Horned Owl
Long-crested Jay	Batchelder Woodpecker
Shufeldt Junco	White-breasted Woodpecker
Gray-headed Junco	Lead-colored Bushtit
Pink-sided Junco	House Finch
Rocky Mountain Nuthatch	

I have done no banding during February, but have kept feed out for the birds. At present I have a porcupine hide hanging outside of the tent and the chickadees are cleaning off the small pieces of flesh still clinging to it.

A sing is going on near the mouth of Teegie Boko, for which the following plants were collected:

Douglas Fir	Gooseberry	Wild Ceranium
Chokecherry	Horsetail	Oregon Grape
Yucca		Eriogonum sp.

*****SWM*****

This question of "bad" road is just a matter of comparison with what a person is accustomed to traveling. To the average traveler to-day, any road that is not paved is bad; to Milton it isn't bad unless it is "rock covered with ice and 12 to 14 inches of snow". One visitor who made the trip to Navajo a summer or so ago described the first part of the road as bad and continually getting worse. When he came to a sixty degree hill covered with loose rocks, his wife made him let her out. After negotiating the hill, he came to the worst part of the road, left his car, and walked in the rest of the way. But this is all good road to Milton until it gets a foot or two of ice and snow on it.--F. P.

*****SWM*****

CAPULIN MOUNTAIN

By Homer J. Farr, custodian,
Capulin, New Mexico.

Visitors this month, 750; total since October 1, 3,000.

This short month commonly called February has been one of the finest winter months for tourists and locals that this country has ever seen. We have had about 750 visitors throughout the month.

Weather has been extremely warm and nice until the nineteenth.

CAPULIN MOUNTAIN (CONT.)

Since that time we have had more or less snow at intervals - I would say about ten inches all together. And beautiful snow it has all been, without wind, which is something very unusual for this section. Farmers are rejoicing over the moisture without wind, and all the boys have been rabbit hunting.

Everybody and his brother in this vicinity had been spoiled the past five years by the high winds and had purchased radio and batteries with windchargers. The past week all have been requesting a P.W.A. project to start the wind blowing so that they may have radio.

The Custodian has recently spent a few hours on the monument removing some rock and lava that had rolled into the road.

I made an inspection trip of the monument road yesterday and while inspecting, found the road in fair condition except the usual sloughing of cinders and lava. The placards have been received concerning the distress signals and have been posted according to advice. However, they will not do a great deal of good in this monument. I believe they will tend to educate the general public and when visiting other monuments, which may have hazards such as the chance of becoming lost, might save a life or suffering.

Our flora in the monument has recently been getting just exactly what is required and the big snows always make for beautiful early flowers of which we have the mountain anemonies which in many early springs will come right thru and blossom on top of the snow. Our small fauna, such as squirrels and chipmunks, are as yet hibernated, but we have a goodly number of gentle deer and Bald and Golden Eagles. The eagles are almost daily visible from most anywhere in the monument. Our porcupines are slowly becoming less in number but we still have too many.

Travel has increased slightly over last February and we are expecting heavier travel this summer than ever before. Bountiful moisture has been reported from this monument east and south for one thousand miles, and the great Dust Bowl is now wet. This sounds like sweet music to our ears for you know we here have been right on the very edge of the big Dust Bowl and in March and April sometimes life here has not been worth it. We now have every reason to believe that we will have a normal spring.

*****SWM*****

TONTO

By Thomas Onstott, in charge,
Roosevelt, Arizona.

Visitors this month, 684; total since October 1, 2,223.

The 31 days on this report rolled by so fast it really doesn't

TONTO (CONT.)

seem right to be making out another epistle to headquarters. Exclusive of a few days in the middle of the month, the weather has been ideal for travel and, although the number of visitors was not great, it has been one of the busiest and most pleasant months I have yet spent at Tonto. The gutter project is, as yet, unfinished but the first 200 yards of trail from the lower ruin have been guttered, widened and resurfaced where necessary.

Nature-trail work has progressed some in the last three weeks. The following cacti have been identified:

Prickly pear: Opuntia engelmannii, Salm Dyck.

Cholla; Opuntia leucocaulis, D. C. "Christmas Cactus".
Opuntia fulgida (Engelm) "Jumping Cactus".
Opuntia bigelovii (Engelm) "Teddy-bear cholla".
Opuntia acanthocarpa (Engelm) "Staghorn".
Opuntia vesicicola (Engelm)

Hedgehog; Echinocereus engelmannii, (Parry) & Rumpler
Echinocereus fendleri (Engelm) Rumpler.

Barrel cacti; Ferocactus lecontei (Engelm)
Ferocactus wislizeni (Engelm) B. & R.

Sahuaro; Carnegiea gigantea.

Along the trail are many other plants well worth pointing out by signs. These plants are sotol, yucca, agave, mesquite, two types of palo verde, catclaw, black brush, buckwheat, and jojoba. All of these occur along a very short trail, not over 90 yards.

VISITORS

Park Service: Dr. Gould, regional geologist, and Dr. McDougall, regional wildlifer, spent two hours here on Sunday, January 30.

Dr. Potter, geologist from Washington, paid a short visit Sunday, February 20.

TRAVEL

	<u>THIS MONTH</u>	<u>LAST MONTH</u>
Total visitors	684	679
Total registered	574	581
States	38	32
Foreign countries	1 Canada	3
Field trips	140	129
Attendance	410	429

TONTO (CONT.)

Time (total SWM 16)

5,615

5,195

WEATHER

Days clear- - - - - - - - - - -17

Days partly cloudy- - - - - - - - -8

Days cloudy - - - - - - - - - -6

Precipitation - - - - - - - - - -1.44 inches (Roosevelt -
S.R.V.W.U.A.)

Temperature: Maximum - - - - - -74 (Roosevelt - S.R.V.W.U.A.)

Minimum - - - - - -36 (" ")

All indications are that the flowers will be early this year. One ocotillo is already in bud. There has been enough rain to help the flowers along, but nowhere near enough to help keep the Roosevelt Reservoir full. This may have a bad effect on next year's travel; no lake, few tourists.

I hope the signs for the highway junctions come through soon, as I would like to see the result.

*****SWM*****

Tommie has had a busy month; those who don't think so might try climbing that rather stiff trail to the lower ruins on an average of five times per day, talking steadily all the time, handling museum parties between times, doing trail work and the general outside chores, and, as a final touch, keeping house for one's self.--F. P.

*****SWM*****

CASA GRANDE

By A. T. Bicknell, custodian,
Coolidge, Arizona.

Visitors this month, 4,227; total since October 1, 17,070.

WEATHER

Days clear- - - - - - - - - - -18

Days partly cloudy- - - - - - - - -4

Days cloudy - - - - - - - - - -9

Maximum temperature - - - - - - - - -81° on the 9th.

Mean maximum temperature- - - - - - -67.3°

Minimum temperature - - - - - - - - -25° on the 18th.

Mean minimum temperature- - - - - - -36.5°

Precipitation - - - - - - - - - -.56 inch.

It looks as though winter is a thing of the past in southern Arizona if this last month is any criterion. The days and nights have

CASA GRANDE (CONT.)

been warm, the mean temperature being 51.9 degrees. Rainfall is somewhat under the norm. but in spite of this the vegetation is beginning to turn green. The winds prevail from the southwest.

GENERAL

Visitor travel to the monument this month reached a total of 4,227, of which 3,953 were contacted. The visitors represented 47 states, Washington, D. C., Alaska, Hawaii, and the following foreign countries: Canada, Mexico, Peru, England, Austria, Denmark, and Belgium. From time to time during the month we have noticed that there has been a decided change in the type of visitor. Up until now we could count on at least 70 percent of them being from Arizona, California, Texas, and Oklahoma. This month, however, these four states contributed only 35 percent of our total travel, the rest of our visitors being from the northern states.

The map folder of the Southwestern Monuments has proven to be quite popular with the visitors. Since receiving these folders in the latter part of January, we have distributed approximately 1,500 to visitors and to individuals who have written and asked for them. And we still have to find one which has been thrown away on the monument. This is more than we can say for a lot of our free literature. For the benefit of those who find that the maps are going too fast, I might add that we were able to make them last a few days longer by requesting that the visitor take only one to a family. But don't ask us to define a family.

WALL WATERPROOFING

Last month we tested the portions of wall in Compound A where various waterproofing materials have been applied from time to time. The results show that we still do not have a satisfactory method of preserving our walls.

In November of 1932 a representative of the Air Spray Company of Washington, D. C., applied a protective coating to the walls of one of the rooms in Compound A. Within 90 days, however, this solution proved unsatisfactory. Not only did it turn the color of the wall to a light grey, but the coating began to crack and peel.

In April, 1935, Mr. Frederick T. Martius made several tests on our walls with an NPSX solution. Two coats of two percent, three percent, three and five tenths percent, and five percent solution were applied to walls with practically the same exposure to the elements. Laboratory tests upon the "caliche" had been highly successful, and for the following two years one could pour water over the coated portions and the wall would seemingly absorb but very little of it. This year, however, there was no observable difference in the water absorption of the walls which had been treated with NPSX and those which had not. Judging from this,

CASA GRANDE (CONT.)

it would appear that in the laboratory we are missing some element which affects the efficiency of our waterproofing solutions, and that the only way to really test a solution is out in the field.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Total travel: 1938--4,227; 1937--3,845; 1936--3,043.

Of the 4,227 visitors to the Casa Grande, 3,953 were contacted in either the ruins, the museum, or both. It required 15,573 minutes to guide 462 parties through the ruins for an average time of 33.7 minutes. In the museum, 6,828 minutes were spent in guiding 338 parties, an average of 20.1 minutes per party.

The picnic grounds have been quite popular. As nearly as we could check, 61 groups (489 people) have picnicked in the grounds and 12 parties have stayed overnight in trailers. On February fifth, 25 Girl Scouts went through the ruins and had lunch under the ramadas. A group of school children from the McDowell school visited the monument on the 11th, showing great interest in the Casa Grande and the outlying groups of ruins. On the 20th, the Sunday School of the Presbyterian Church in Coolidge held a picnic on the monument. More than 125 persons attended.

NEWSWORTHY VISITORS

National Park Service: Dr. Charles N. Gould and W. B. McDougall, regional geologist and wildlife technician from Santa Fe, New Mexico, dropped over to see the ruins while they were visiting Headquarters on February 2. On the 26th, F. Nichols and F. Eastman of the Historic American Building Survey visited the ruins. Nichols had some mighty interesting restoration drawings of the mission at Tumacacori. Dr. Frank Potter from Washington, D. C., stayed at the monument several days writing a report on the geology of White Sands. We found him a fine fellow, interested not only in our ruins, but very helpful in making suggestions as to the geology seen on our "DESERT TRAIL". We were very glad to meet Bill Leicht on the 23rd. Bill decided to come down to the Southwestern Monuments from Grand Canyon, and is to be our new man at Navajo National Monument.

On February 3, Mr. Ira Nelson, president of the Armour Company and consul to Roumania, visited the monument accompanied by the Baron and Baroness Reninghaus of Vienna, and Mr. J. F. Parker of New York City. The Arizona Archeological and Historical Society went through the ruins on the 12th. In the party was Senor Jose Encinas, Ex-rector of the University of San Marcos at Lima, Peru, who was sent to the University of Arizona for the winter by the Carnegie Endowment for International Peace to lecture on the archeology of the Inca Civilization. Dr. Charles W. Mayo of the famous Mayo Clinic in Rochester, Minnesota, brought a party of friends to see the ruins on the 15th. Another

CASA GRANDE (CONT.)

interesting visitor this month was Mr. Arthur Price of Station KRFC, San Francisco. He was much impressed by the Casa Grande and within the near future hopes to broadcast a brief description of it on the "Scrap-book" program. Other visitors to the monument during the month included Donald Culross Peattie of "Green Laurels" fame, Clarence Buddington Kelland who amuses us each month with his stories of "Scattergood" in the American Magazine, and Mr. Kenneth Chapman of the Laboratory of Anthropology in Santa Fe. Mr. Chapman gave an interesting lecture on the development of Pueblo pottery design at the Heard Museum in Phoenix.

NATURE NOTES

Spring is right on the heels of winter. The creosote and salt bush are beginning to turn green, and the squawberry is blossoming wherever there is an abundance of water. The birds also seem to be affected by the weather. Mr. and Mrs. Western Horned Owl have decided to raise a family. This keeps Mrs. Owl so busy that she has no time for the public. The other day one of the CCC guides mentioned that due to the absence of the owls, his time has dropped at least five minutes in the ruins. The cactus wrens are obliging us by building nests in the cholla near the museum. It is a constant wonder to the visitors that the wrens can build nests in the "jumping cholla" without getting stuck.

Our Desert Trail is not in operation as yet, but the copy is practically ready. An argument has arisen as to whether or not the visitor will read a 15-page pamphlet. As a result we are going to mimeograph a brief summary of the Desert Trail guide pamphlet, and let the visitor take his choice. The other day a young lady was quite disappointed to find that we guided visitors only through the Compound A and the museum. It seems that she had been here a number of years ago when we spent more time with each party. Remembering this she had prepared her friends for a trip of several hours on the monument. We were sorry to disappoint this young lady, but we hope that she will come back and try our self-guiding trail.

WORK ACCOMPLISHED BY GENERAL MECHANIC

In addition to regular maintenance work and the servicing of cars, trucks and equipment at headquarters, Gene Stonehocker has had a variety of jobs during the month.

The passenger car, Ford V-8 USDI 13771, recently transferred to us from the Regional office, has been overhauled and a reconditioned motor installed. A trip was made to Phoenix for the motor and welding supplies.

Three trucks - USDI 11161, 11197, and 10369 - received for service at the CCC side camp were inspected and the equipment checked. Also several no-charge jobs were done in cooperation with the CCC camp. The

CASA GRANDE (CONT.)

new Chevrolet pick-up for the monument was checked against the specifications and the required equipment installed.

A carriage was built for the welding equipment and several welding jobs are being done as time permits. Other work accomplished includes: repair of the water supply pump, blacksmith drill, and a gasoline pump for Tumacacori. The fenders on USDI 1805, 8113, and 13771 were welded, the cylinder oil pump was overhauled and repainted, the clutch on the Tonto Ford was adjusted and lubricated, the map case for Davy's nature trail was constructed, also the children's playground equipment was repaired. A portable paint spray outfit was shipped to Chaco Canyon, and a boring bar and D. C. electric grinder were transferred to Sanderlin. Sifting of equipment and finding storage space for supplies required considerable time this month due to the preparation for the new construction.

NEW EQUIPMENT

One new Chevrolet pick-up has been received and is now being used.

CASA GRANDE SIDE CAMP

Work continued on Job No. 50, shop construction, and 136 man days were used on this project. On the 11th, the adobe walls were completed to the plate line. The roof supports and most of the rafters are now in place.

Fifty-five man days were spent on Job 51, warehouse construction. In connection with clearing the location for this building, a number of creosote bushes were transplanted to the vicinity of the sewage disposal plant to screen that low shelter. Engineer Tovrea and Foreman Hobbs located and set the stakes for the project on the 19th. Excavation of the foundation was started on the 24th.

A total of 100 man days were used on Job 53, guide and educational work. This includes enrollee Arnold who is breaking in for the CCC office work at NM-2-A. Arnold replaced Vasquez. Buster Baldwin has been given a few days experience under Park Naturalist King so that he may step into enrollee Hale's place. Hale expects to leave us on account of sickness in the family.

Only 11 man days were used on Job 54, clean-up. We are still hauling old adobes from Compound B. The old open storage shed on the warehouse location has been torn down and cleaned up.

On Job 55, 80 man days were spent in the manufacture of adobes for the warehouse. Eighty-two man days were charged to overhead.

Safety meeting were held on Thursdays of each week with the excep-

CASA GRANDE SIDE CAMP (CONT.)

tion of the 10th. On this date it conflicted with other classes.

Special permission was granted enrollees Coyle, Rodgers, Savage, and Maples to attend a lecture at Heard Museum in Phoenix. The boys were accompanied by Ranger Jones. The lecture dealt with the development of design in Pueblo pottery, and has been helpful in the general guide work in the museum. A Ford V-8 stake body, a Dodge, and a Chevrolet cargo truck were received for use at the side camp.

On February 24, the side camp was inspected by Major Hildring, district commander from Phoenix, Major M. W. Marsh, U. S. Army, Fort Sam Houston, and Mr. A. M. Rogers, chief educational adviser, Eighth Corps Area, Fort Sam Houston, Texas. Other inspections were made as follows: Capt. Tway and Lt. Keiling on the 1st; Project Superintendent Bill Stevenson, Lt. Lee, commanding officer, NM-2-A, and Assistant Superintendent Miller on the 2nd; Lt. Keiling on the 9th, accompanied by Capt. Brandon; 10th and 25th, Project Superintendent Stevenson; 24th, Lt. Keiling. Chaplain Probert held services with good attendance on the 15th and 27th. Educational Adviser Beatty, NM-2-A, visited the camp on the 15th.

Park Naturalist King will report on the educational activities for the month.

*****SWM*****

It was a serious disappointment to find the Martius NPSX solution was failing in its protection at the end of the third year. The cost of its application will, of course, prohibit its usage on our walls if we have to renew it every two years. We will be glad to have some of the experts drop in and check our observations on this and we will begin checking the other applications at monuments under our charge in the Southwest. Casa Grande is the best test we have for light and heat conditions but some of the more northern monuments will be better tests as to snow and cold.

The failure of this solution brings us back to the original starting point; what are we going to do in the way of protecting these southwestern ruins, more especially the mud walled ones, so visitors will be able to see them one or two centuries from now?--F. P.

*****SWM*****

NATURAL BRIDGES

By Zeke Johnson, custodian,
Blanding, Utah.

Visitors this month, --; total since October 1, 147.

It's such warm beautiful weather up here that I feel like the old long-horned cow, I want to be back on my summer range again. Yes, I'll

NATURAL BRIDGES (CONT.)

be glad to go back as I don't believe I was cut out for a city dude. It won't be long now if all goes well.

I have had some very fine times this month. On February 4 I was invited as a guest to a Boy Scout banquet with 70 Scouts, their parents and Scout Masters, and several others. I was given 15 minutes and when my time was up they encored me and asked that I talk 10 minutes longer. I am sure that that crowd knows something about the Natural Bridges and some other spots in the southwestern part of Utah now. A few days later I went over to the L.D.S. Bureau of Information and was looking at a beautiful picture of Owachoma Bridge hanging in a big window. The picture is on glass and hanging in a window makes it shine out. Others were attracted and someone asked if I knew anything about it. Then I really came alive, and before I knew it there were 40 or 50 people listening to what I was telling. Then I took them to see five or six mummies and several hundred artifacts that we had gathered with the mummies, so San Juan was put on the map as far as that crowd is concerned. Five or six times since then I have repeated, and I find that I can always get a crowd to listen to me. One day I had five army officers from San Francisco, and every time I had a crowd, most of the people were from other states.

Yesterday I was invited to go with Mr. J. H. McGibbeny (the man who was at the Bridges last fall with Custodian Reed from Arches). He showed natural-color slide pictures of Lasal Mountain, Arches, Natural Bridges, Monument Valley, and many others to a group of women, 72 in number, that were holding a club meeting. Mr. McGibbeny introduced me and asked me to tell them all about what was being done to put southeastern Utah on the map. Then, of course, I told them about that scenic section. Believe me, Mr. McGibbeny has some of the most beautiful pictures of that country that have ever been taken and he is now a booster for Grand and San Juan Counties and all of the Four-corner country.

So, I have talked to 700 or more people this month, in all, and I am glad to have had the chance. I love to talk about the country and the things that I am interested in. I believe that this number could almost be doubled, but I don't want to be extravagant.

*****SWM*****

I would say that Zeke had earned his winter salary of a dollar per month, wouldn't you, Chief? It is interesting to note that Zeke is no platform orator; this is just a case of a man who knows his country thoroughly, is thoroughly sold on it, and wants to give the other fellow the same pleasure of seeing it. He draws and holds a crowd without a particle of trouble and his hearers are being educated while they are being entertained.

Which reminds me that we received quite a compliment some little time ago when an officer high in the administrative circles of a nationally known automobile company held a state conference of his agents in Phoenix and spent the better part of an hour telling them how he was shown through the Casa Grande Ruins by a guide who made it intensely interesting for him, and, who, upon being questioned, said that was the fifth or sixth trip he had made that day. The officer said that if he could get all his agents to carry their enthusiasm for selling to that height, the factory would be working overtime to furnish cars. And we don't know yet which guide he was talking about!--F. P.

*****SWM*****

CHACO CANYON

By Lewis T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 301; total since October 1, 1986.

Well, Boss, I will celebrate my daughter, Ora Elaine's fourth birthday by writing this report.

Nothing much has happened this month of interest, except four days over at Aztec Ruins National Monument helping Cal. get ready for the Region meeting which was held there on the 14th of this month. The people all seemed to have enjoyed their visit to the ruins, and the wonderful service given them by Custodians Miller and Farris, but Custodian Mae wasn't mentioned by anyone. I guess they found out that I cut the wood and built the fires which created so much smoke in the Great Kiva, but the Kiva was warm and there was not any smoke to speak of when they arrived. However, some Wise Guy thought he would help out by putting several big pieces of wood on the fire in the fire-place, so you can guess what happened. And by the time all that smoke had cleared, (or about cleared so you could stay in there without tears) the women had finished their meeting. They came over and, of course, wanted to help also, and while Cal, Johnwill, and I were helping the ladies down the steps, one of the women put on some more wood. And on into the night and smoke we sat, listened, slumbered, and wept.

We have had quite a lot of moisture this month, rained one day, snowed and rained another, and snowed three days. Precipitation this month totaled .43 inch with seven inches of snow. We also had a couple of stiff winds, which makes you think that the ground-hog saw his shadow. Minimum temperature for this month was 9°, and 57° was maximum. Six days were cloudy, ten partly cloudy, and the balance clear.

Three hundred one visitors were through the monument this month, in 91 cars, trucks, and wagons. We also had one Harvey Bus this month. This is not many visitors, but I am getting my old boots half-soled and my breeches patched and my one shirt laundered so I will be all ready within about thirty days. I have a feeling that we are going to

CHACC CANYON (CONT.)

have more than 10,000 visitors this year, and if I can get my old Park Service Salesman (Homer Hastings) back this summer, I think we will have more than we can handle a year from this summer. It doesn't take much of a salesman to sell Chaco to the visitors if he really knows what we have here and where it is. And Homer certainly knows the canyon and can show it to the visitors. I have a few new bargains for our visitors this year, too.

The Bakers left the Canyon the 17th to take over another job excavating at Canyon, New Mexico. We all were very sorry to see the Bakers leave.

Mr. and Mrs. Paul Reiter are back in the Canyon again for the summer, and we all welcome them back, even the new daughter which made her first visit to the Canyon on the 16th. Paul has been with the State Museum for a number of years, but since they have turned over all their interest along with the American School of Research to the University of New Mexico, Mr. Reiter will be in charge here in the Canyon for the University. All the big shots of the University will be out to the Canyon on Monday, the 5th of this month to make plans for the future.

Well, Threatening Rock is still at it! It measured $3 \frac{1}{8}$ on the east, $3 \frac{1}{8}$ in the center and $2 \frac{15}{16}$ at the west end this morning. Now what? I plan to start measuring it each morning and each evening, starting in the morning, February 24. All of these measurements, you remember, were set at 2 inches last August.

The roads are in pretty good condition in both directions. They have been passable all winter, a little slick for a day or so, but nothing to worry about. We have fixed a lot of the bad mud holes in the trail roads here in the Canyon, and should be able to get around much better than we have in the past. From all the flags and stakes the New Mexico Highway Department has along Highway 55, they must plan to do some more work on that road.

I hope Jackson and Boundey never, never contact some of the nice little striped kitties that I have, because if they do, they certainly will have a loud story to tell. I know of a guy that liked to show his boy friends what he could do when he was just a lad. One day when he was out rabbit-hunting down on Black River, he found a skunk in a steel trap. This wise little lad walked up and hit the little kitty right between the eyes with his fist. My, my, never again! Anyway, his pals dragged him down to the water and stuck his head and all under. This happened 16 years ago this month, and if any of you have been in Black River during the month of February you can tell the balance how cold that water gets.

This mild winter we have had in the Chaco has certainly helped us out a lot. We have been able to work on the walls of Bonito most of

CHACO CANYON (CONT.)

the time, and saved a lot of the walls that would have gone if we had another winter like last. And there are a lot of walls in the other 16 major ruins that certainly would have been damaged a lot if this had been another tough winter. I hope we can get to some of these before another winter.

*****SWM*****

The figures on Threatening Rock are beginning to get interesting. From a zero in August, 1937, the Rock has moved out as follows:

	<u>East</u>	<u>Center</u>	<u>West</u>
December	10/16 inches	11/16 inches	9/16 inches
January	12/16 inches	14/16 inches	12/16 inches
February	17/16 inches	17/16 inches	15/16 inches

It looks as if there is a movement forward amounting to about 3/16 inch per month through the fall and winter months. Possibly this will be reversed in the spring and summer months.--F. P.

*****SWM*****

MONTEZUMA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 466; since October 1, 2,907.

VISITORS- - - - - 466. Last Year: 313.
Arizona by cars - - - - - 266 - 57% of total.
California by cars- - - - - 58 - 12.4% of total.
Total states- - - - - 28
Foreign countries (British Columbia)- - - 1

CONVEYANCE

Cars- - - - - 136
Horseback - - - - - 23

CONTACTS

Guided field trips- - - - - 105
Attendance- - - - - 295
Trips through Castle- - - - - 85
Those who climbed ladders - - - - - 230 - 78.49% of total on trips.
Average persons per trip party* - - - - - 3.85
Average persons per trip group**- - - - - 2.81
Average trip time per party - - - - - 58.18 minutes.
Average trip time per group - - - - - 42.09 minutes.

*Party means total persons on part or all of a trip.

**Groups are natural arrival units of a party.

MONTEZUMA CASTLE (CONT.)

Museum talks- - - - -	91
Attendance- - - - -	259
Average persons per talk party- - - - -	3.8
Average persons per talk group- - - - -	2.84
Average talk time per party - - - - -	23.82 minutes
Average talk time per group - - - - -	17.8 minutes
Special guide trips - - - - -	6
Attendance- - - - -	14
Average party and group time- - - - -	18.83 minutes
Unguided trips- - - - -	53
Persons on unguided trips - - - - -	167
Average unguided trip time- - - - -	19.30 minutes
Average actual guide and lecture time - - -	60.95 minutes
Average group minutes on monument - - - - -	81.65 minutes

WEATHER

Precipitation - - - - -	1.01
Days cloudy - - - - -	13
Days partly cloudy- - - - -	4
Maximum temperature - - - - -	71 on February 7.
Minimum temperature - - - - -	19 on January 25.
Mean maximum- - - - -	60.02
Mean minimum- - - - -	31.79

WEATHER AND ROADS

Weather has been fairly moist and cloudy, but mild. On February 10 a brief hailstorm occurred, and on February 19 it snowed heavily for about an hour, but it melted as quickly as it hit the ground. As an aftermath of this snow the roads were quite muddy for a day. It is of interest to note that on February 17 a slight flood occurred in Beaver Creek. This was the first flood in about a year.

Approach roads are more open than usual this winter. While no visitors have been down from the Stoneman Lake road, the Apache Trail through Pine and Payson has brought in several people. So it can safely be said that the Apache trail, at least north of Roosevelt, is in a little better shape than customary for February. Travel over the Black Canyon road is very slack now.

The approach road from Sedona via Beaver Creek is rough. The approach road from Highway 79 at Cornville is still under construction, and consequently quite rough in places. The road which is bringing most of our travel now is the one from Cottonwood via Camp Verde, and it has been kept in excellent condition.

Snow has not interfered with travel over the highways from Prescott and Flatstaff. In fact, this is an unusually mild winter, with very

MONTEZUMA CASTLE (CONT.)

little snow.

SPECIAL VISITORS

National Park Service: January 28 - Dr. Charles N. Gould, regional geologist, and Dr. W. B. McDougall, regional wildlife technician, made an official visit to this monument, and we spent an interesting and worthwhile two hours with them.

February 20 - Gordon Vivian, foreman of the CCC Mobile Unit located at Chaco Canyon, in company with Mr. Reed, stopped in to see the Castle and museum.

Other Visitors: Mr. J. B. Houghton, a Maine artist, made several visits during the month doing water color paintings of the Castle.

January 25 - Mr. and Mrs. John E. Fast, of Oak Park, Illinois, paid a two day visit to the Jennings, and were much interested in the monument. Mr. and Mrs. Fast need no introduction to Southwestern Monument folk as ardent Park Service enthusiasts.

February 2 - Mrs. A. C. Carlson, wife of the head surgeon of the Phelps-Dodge Hospital in Jerome, was an interested visitor.

February 13 - J. W. Hubbard, manager of Radio Station KCRJ, of Jerome, Arizona, was an interested visitor.

February 14 - Burr Williams, of Winslow, Arizona, an old timer who saw the Castle in 1877, was a quite interested visitor.

February 15 - Henry Beston, an historian from Massachusetts, was a visitor.

PUBLICITY

J. W. Hubbard, Manager of Radio Station KCRJ of Jerome, Arizona, informs us of pending publicity. His station has exchanged 15 programs of 15 minutes each with the Warner Brothers Station KLS in Oakland. These talks will cover 15 weeks, and will begin April 1. Five of these talks will be on features of the Verde Valley, and one of these five will be about Montezuma Castle.

NATURE NOTES

Early this winter we thought the lizards were going to hibernate. They did, but only for short periods, during the coldest spells, and have been out frisking around on warm days, especially on sunny sides of the cliff and on the south sides of bushes.

MONTEZUMA CASTLE (CONT.)

The slight flood of February 17 appears responsible for bringing out some of the dormant frogs. For on the night after the high water, the Jennings heard frogs talking in several places on the creek.

On February 10 the Jennings heard two coyotes yapping on monument territory a short distance across the creek from their tent house. The Jennings also report seeing two large jack rabbits recently. Jack-rabbits, while once plentiful in the valley, appear to be getting somewhat less common. It is very seldom we see one nowadays in this immediate vicinity.

On February 21 the H.C.W.P. saw two cottontail rabbits taking a dust bath in our back yard. I should say only one was taking a bath, for the other was an interested on-looker. While one rolled around and around in a dust pocket, the other watched, and then proceeded to interrupt the ablutions by chasing the bather away. This happened two or three times, the bather repeatedly coming back to the dust pocket until finally satisfied he was clean, or dirty, I don't know which. Anyway, they both bounded off together a minute later.

For Bird Notes for Montezuma Castle, see Betty Jackson's report at the end of this report.

GENERAL

From the custodian's viewpoint, things have gone satisfactorily here this past month. Trip time and museum contact time have increased. In spite of one bad entrance road, our interested visitor run has held up. A busy season is anticipated this summer, if present travel increase means anything.

Several days of the custodian's time this month was spent in collecting data for and the preparation of a large scale map of part of the valley. Most of his other free time was devoted to pushing toward completion a miniature model of one of the cliff rooms uncovered by the 1933-34 dig in the lower ruins. From visitor reaction to one miniature model made last year, it is confidently expected that this second and more elaborate model will be well received. It is not completed yet, but another week should see it done.

The general outlook of people in this valley, especially the ranchers, is a bit gloomy this year. The winter has produced so little snow on the mountains that cattlemen expect a starvation year. Also, the copper mines are running on curtailed production, so a lot of men are out of work, although many expect to be put back most any time.

Last month I stated that our carefully prepared museum exhibit of sexual differences in male and female bones was a little too complicated in its labeling. Since then some simplifying has been done,

by addition of a picture and designations of a few different bone parts on it. Instead of helping the interest situation, the simplified label has apparently harmed it. So here is how it stacks up when we prepare a bone case:

At first the exhibit had no labels. Then we found the visitors were pretty much interested in it. They were willing to listen to explanation of the bone features, and to ask questions. Then we put in some labels, to make the exhibit self explanatory and simpler to understand. After that, the visitors paid little or no attention to the case, unless the guide specifically called their attention to it and held them there while he told the whole story. Now, with the final simplification of the labels, people practically won't look at the exhibit at all. So where does that put us? Why make labels if people won't look at them?

I suppose the labels look too much like we are trying to educate the people. That must be the feature that horrifies them. They (most of them) are not here to learn but to be entertained. I reckon you must have been right when you said it wasn't what you had in the museum or how it was fixed up, but how the guide exerted his personality, that counted on contacts. Well, Jesse and I have lengthened our contacts here in the past few months. But we have not taught the people any more than we did before. We have simply put forth more effort to find what the people wanted to talk about. The result is, we do an awful lot of listening along with our talking. That can be done in a national monument where you usually have only one family in a group. In this group, one person will usually want to do all the talking. We expose this group to education and archaeology as much as they can stand, and then listen, with polite comments of "How interesting!" or "I saw one of those once, too, but it wasn't a very good one." Result: we build up our contacts, but the sum total of education dispensed **has** shown no increase.

I can lengthen the stay of visitors in this museum. But I don't believe it can be done with labels or with additional archaeological material. People are becoming jaded from archaeology. What I'll hold them with will be lifelike mounts of stuffed snakes, insects, animals, etc. I know I can lengthen their stay with such material, because I have proved it since last August by installing such things, and watching the people react.

This has not been a complaint. If it is okay with you and Washington that we stress archaeology less at these archaeological monuments and lay increased stress on Natural Science, it suits this person to a "T". For it is very interesting work fixing up exhibits of flora and fauna. And when you get through, people get a lot of kick out of it.

BIRDS AT MONTEZUMA CASTLE

By Betty Jackson.

Follows a list of the birds seen this month on the monument:

West-Strut-backed Bluebird	Arizona Cardinal
House Finch	Pale Goldfinch
Desert Sparrow Hawk	Red-tailed Hawk
Treganza Blue Heron	Killdeer
Belted Kingfisher	Ashy Ruby Crowned Kinglet
Oregon Junco	American Merganser
Great Horned Owl	Black Phoebe
Gambel Quail	White-rumped Shrike
Townsend Solitaire	Gambel Sparrow
Crissal Thrasher	Caracara
Baird-Bewick Wren	Caracara

It's funny, but no Mourning Loves have been seen on the monument recently, though they are very numerous elsewhere in the vicinity. They'll probably be back in breeding season, however.

The Black Phoebe arrived, to the best of our knowledge, on January 28. The Crissal Thrashers appeared on February 12 for the first time in a month. They certainly put their hearts into their songs. On February 20, I was distracted from the breakfast dishes by a full, rich song, somewhat like that of a canary, but with deeper quality and more variety. The bird was nearly a quarter mile away, sitting on the top-most twig of a mesquite and bursting with song. It was a misty morning, trying to clear off after the rain and snow the day before, and apparently conducive to happiness.

The House Finches were singing in the tops of the sycamores, and a Baird-Bewick Wren was donating his attempts from the fallen brush by the creek side. In spite of a funny, rusty quality, his song was pretty. Today Jane heard a thrasher do a take-off on a House Finch. He would listen to the finch sing, then imitate the song. Though his imitation wasn't perfect, it was recognizable.

The Townsend Solitaire was seen on February 5. On the same day, a male Cardinal preened himself, using the creek as a mirror, for three quarters of an hour that Jane watched him. He was across the creek from her, hopping from the stones to the bank and back again, cocking his head this way and that, and drinking occasionally, but mostly just looking at himself, as far as Jane could tell.

On the 10th Jane heard a Killdeer for the first time in quite a while. They have been heard three or four times since. Up until that day, the heron had been feeding every morning up and down the water hole by the tent.

MONTEZUMA CASTLE (CONT.)

The 12th seems to have been quite a day for birds. The bluebirds were seen then, 'though only a few of them; the Crissal Thrasher, and several flickers in the same bushes; the American Mergansers, and the daily visitors such as the Cactus woodpecker, juncos, sparrows, and kinglet.

On the 16th, Jess saw six American Mergansers in the long hole you look down on from the Castle. That night a Great Horned Owl lit on a branch close above the tent and hooted considerably. The boys tried to sneak out and watch him, but could not see his markings - only his size and 'horns'.

On the 17th, Jane saw a White-rumped Shrike on the monument. These birds are regular residents on the road between here and Camp Verde, and we see them nearly every time we go in, but I have not seen any here before.

The Belted Kingfisher was here only from the 2nd to the 16th and is now gone again.

*****SWM*****

Congratulations to Custodian Jackson for the thorough job he did on the map he speaks of preparing for headquarters.

We are very glad to hear of the museum problems at the Castle and we are ready with at least one answer to the label question: why make labels if people won't look at them? Labels are good for deaf visitors who receive information better through the eye than through the ear. Also we have found at Casa Grande, when the guide system breaks down, the labels are better than nothing. We would say, in response to the statement that the visitor is with us not to learn but to be entertained, that the two do not necessarily cancel each other out; it is up to us to see that he is entertained while he learns.

We disagree with you in the statement that you have built up your contact time but have not increased the sum total of education. We are free to admit that we don't know just what is education, but we think that letting the visitor carry part of the talk makes him think and can often be classed under the head of education, and we certainly learn a lot by watching his mind work.

You are right, Earl, about the interest you can raise in local flora and fauna and we would urge you to develop exhibits along those lines, not with the idea of stressing archeology less, but simply stressing these other things more than you have heretofore done.--F. P.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

VISITORS

Although I have no way of determining the exact number of persons who visited the arches during this month, I am sure there has been an increase over January. Dr. Williams and I have each conducted a party through the monument and there have been several others on which I have received reports. I would like very much to have a register at the end of the road near the arches. This would give a much more accurate check on the number of visitors. This could be installed with very little expense as the material would be the only cost. I think it would be worth much more than the cost and will gladly build it if permission may be had and a suitable book furnished by the Park Service.

WEATHER

It looks very much like spring is just around the corner. We have had the mildest winter in many years. Snowfall has been light but sufficient to insure plenty of moisture for the coming season. I have made a number of hikes during the past month and on each occasion the weather was ideal.

MISCELLANEOUS

On February 5, I received a letter from Mr. J. H. McGibbeny of the Salt Lake City Chamber of Commerce which is of unusual interest. The letter, in part, follows:

"Last Saturday (Jan. 29th.) Wilson McCarthy, Co-Trustee, E. A. West, General Manager, and Carlton Sills, Assistant Director of Public Relations, where is Salt Lake. We got them down to the Chamber of Commerce and I showed them pictures for two hours. Later Mr. Sills came up to my office and we studied maps for the definite purpose of planning circle tours and discussing the feasibility of building tourist facilities somewhere in that region. The circle tour would take off from Grand Junction, go south to Mesa Verde National Park, and then into Utah by way of Monticello. From Monticello side trips could be made to Monument Valley, Natural Bridges, the Goose Necks, and other scenic attractions to the south, then back to the Moab area, including Fisher Towers, Colorado River, and the Arches and on up to Crescent Junction or Thompson, where pullmans could be set off on sidings to pick up their passengers.

"I suggested a combination lodge and dude ranch in the neighborhood of Moab or Monticello. The railroad would probably favor Monticello because it is higher and cooler and the natural taking off place for the side trips to the south. The

fact remains that I have been able to accomplish definitely the start of the plan that I have discussed with you many times. We are going to get development down through that country by D. & R. G." *****

As you perhaps know, the three gentlemen referred to in Mr. McGibbeny's letter are officials of the Denver and Rio Grande Western Railroad. The pictures he mentioned are natural color lantern slides and motion pictures which we made on the many trips we have made together in this area.

AN INTERESTING SIDE TRIP

Again this month my brother and I felt the urge to take advantage of the fine weather to look over some of the country we had not seen before. This time it was Klondike Bluffs, that section which lies south and west of Salt Valley and which is within the proposed extended boundary of Arches National Monument. I was somewhat surprised and greatly pleased to learn that this is one of the most scenic sections of the area. Outstanding among the attractions are the Tower Arch and the Fingers. Tower Arch is all that its name implies. A lofty tower at the base of which is a beautiful arch of massive proportions. The Fingers are well named. They stand out boldly against the sky atop a narrow ridge of sandstone. Klondike Bluffs may be easily reached from Salt Valley. A hike of less than a mile over a fairly good trail puts one into the area. The road through Salt Valley is in fair condition.

*****SWM*****

We will make arrangements to install the register Harry asks for so we may get some figures on the number of visitors at Arches this summer.

It is to be hoped that the proposed circle trip in southeastern Utah and southwestern Colorado becomes a reality; it will open up a very wonderful district to the train visitor.

Harry's description of the Klondike area sounds interesting. Our proposed extension, however, seems hung up until a flock of oil claims which cover that country expire. We can't take in land covered by such claims even though we feel certain oil will never be found in profitable quantities in that particular district.--F. P.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 45; total since October 1, 257.

CANYON DE CHELLY (CONT.)

We received a headquarters memorandum this month requiring us to be more specific in our monthly reports and giving us a skeleton form consisting of some 41 numbers to be used in checking the completed report so that we might see that we had actually put some meat into it in order that twelve such monthly reports would work up into an annual report which would show everything that had taken place at the monument during the year. If it takes 41 subdivisions to make a good report, Boss, I must have been one of your prize spoofers over the past nine years and I sincerely apologize for the lack of facts in all those reports.

Our ideal weather of the past few months has given way to storms and our roads are nearly impassable. We have not had an excessive amount of snow, but these, coming after such ideal weather and so late in the season when we are expecting winter to give way to spring, make it seem harder than it otherwise would.

Things have been very quiet this past month as this is of course the dulllest time of the year with us. I have made the regular inspection trips over the monument and have observed no vandalism. Sundays are likely to be visiting days for the local people at this time of year, so I have been careful to cover all points on Sundays which are generally frequented by local picnic parties. Our present financial condition prohibits as many inspections as I would like to make, but I feel confident that no vandalism is occurring.

During the month I received several of the Uniform Distress Signals signs and have put them up.

Road maintenance during February consisted of minor repairs, cleaning drainage trenches, and filling in low spots. There was no new construction either on or near the monument.

The Soil Conservation Service did considerable planting and fencing to protect planting.

I have spent some time the past month studying the archeology and history of Canyon de Chelly and am thus better prepared for next summer's work.

We have had quite a mad dog scare around these parts of late and the Indian Service officials have been killing some of the Indian dogs. In this matter of dogs, Boss, I want to be excused from your recent office order that all dogs within the monument be kept on leash. You know how many dogs these three hundred odd Navajo Indians have on this monument, and a Navajo with a dog on a leash just doesn't look natural.

We had 45 visitors for the month, which is a larger number than February usually brings us. One Sunday alone accounted for 33 of

these and, of course, many of them were local people. A doctor from the Ganado Mission, 40 miles away, was in with his sister from South America. Otherwise three western states furnished all our visitors.

The ground water level has risen around the headquarters area in the past few weeks putting the septic tank practically under water. There is nothing serious about the situation and both sewage and water systems are functioning perfectly.

I made an official trip to Aztec National Monument during the month to help Cal. handle the crowd at the Legion meeting which was held at his monument. Lewis McKinney was up and we three had a fine reunion. Cal. has a wonderful monument and I noted many improvements over the Aztec of old. It was funny to see old Cal. swell up like a blimp when the crowd spoke so nicely about his place. He forgot all those remarks he used to make about Aztec when he lived off in those sand dunes around the Ofaco. Anyway, he proved to be a wonderful host and I heard many compliments from the visitors on the way he handled the crowd. My compliments to you, Sir Cal.

I made two trips to Gallup for supplies, both being quite a contrast to last year when I got caught at the other end of the road and had to wait seven days for the country to dry up enough for me to come home.

On the whole, the month has been a good one in an open winter. Spring weather seems on the way and it will not be long until we will be greeting the summer visitor.

*****SWM*****

Johnwill is right about the office memorandum; we want to get more meat in some of the reports so that at the end of the year we can condense the twelve monthly reports from a monument into an annual report that will fill something more than a dozen lines.

It isn't that we want you to follow the subdivisions of that outline number by number; that would make our monthly report to the Director a deadly thing to read. As we said in that memorandum, we want you to write a regular narrative report, the very best you can; then take the outline and check in the margin of your report the number in the outline which is covered by the paragraphs of the report. It will probably develop that you have overlooked several interesting points which the outline will call to your attention. Add these points to your report and you will be adding meat to your annual report.

If you don't believe there was cause for that memorandum, sit down, one of these winter evenings, and go back over your last twelve reports in the monthly reports; read them thoroughly, and then say if they represent a true picture of all that took place at your monument

CANYON DE CHELLY (CONT.)

for the past year.--F. P.

*****SWM*****

BANDELIER

By C. G. Harkins, custodian,
Santa Fe, New Mexico.

Visitors this month, 221; total since October 1, 2,697.

WEATHER

Days Cloudy-	- - - - -	-12
Days Partly Cloudy	- - - - -	-12
Days Clear	- - - - -	7
Max. Temperature-	- - - - -	-58° (9th)
Min. Temperature	- - - - -	8° (18th)
Mean Maximum	- - - - -	-44.23
Mean Minimum	- - - - -	-22.53
Mean	- - - - -	-32.83
Range-	- - - - -	-22.75
Precipitation-	- - - - -	.52
Snow	- - - - -	6 inches

All equipment for the Weather Station has arrived and has been placed in operation as of February 16.

Weather for northern New Mexico had been ideal up to the evening of February 15 when a light rain turned into snow. Snow continued falling the remainder of that night and all day the 17th. It cleared up in the evening, leaving a total of five and one half inches of very wet snow on the ground. This much-needed moisture is very welcome as the unseasonably dry winter has caused considerable concern, and unless there is more moisture in the timber, the fire hazard may become serious in the coming season.

ADMINISTRATIVE

One official trip was made to Headquarters. The Custodian left Bandelier at 7:00 a. m. on February 6 and arrived at Casa Grande on Tuesday at 9:30 a. m.; returning to Bandelier at 9:30 p. m. on Saturday, February 12.

PARK SERVICE VISITORS

February 18 -- Mr. H. A. Montgomery, Associate Engineer, Regional Office, Santa Fe; Mr. Clark Wells, Regional Electrician, Santa Fe; and Mr. Alden B. Stevens, Jr., Washington, D. C.

BANDELLIER (CONT.)

MAINTENANCE AND IMPROVEMENTS

A new trail has been laid out along the creek leading to the ruins, which makes it nicer for the visitors in making the ruins trip in place of the road leading by the CCC barracks. This trail was laid out quite some time ago.

A flag pole has been erected and a drinking fountain placed in the portal between the Administration Office and the museum.

Roads leading to the monument have been in fair condition, but since the recent snow fall, they perhaps will become sloppy.

BIRDS

Bird banding has continued all month and a total of 77 birds were banded. They consisted of three Canyon Towhees, 62 Grey-headed Juncos, five Pink-sided Juncos, four Shufeldt Juncos, four Red-backed Juncos, one Pine Siskin, and two Montana Juncos.

TRAVEL STATISTICS

Total travel- - - - -	-221	Total contacts- - - - -	-138
Museum trips- - - - -	25	Special groups- - - - -	47
Total guide time in the field -1,975		Total guide time in museum- -380	
Total guide time special- - -	10,820	Total visitor time- - - -	13,175
Average time field trip - - - - -	71	Average time museum contact -	15.5
Total guide minutes - - - - -	-2,355		

NEWSWORTHY VISITORS

January 28 -- Mrs. E. M. Childs, Mr. and Mrs. Vern M. Sunderland, archaeologists, and friends of Dr. Hewett.

January 26 -- Mr. Miller, U. S. Forest Service, Albuquerque, and party of four, spent several hours in the Canyon.

February 4 -- House, N. Mex., Consolidated School basket ball team, 10 members, made a trip through the ruins.

February 19--Herbert Mchlorn and Werner Heyensenter, Berlin, Germany.

Travel to Bandelier held up the first part of the month, but unsettled weather conditions the last two weeks had a telling effect on our total. Snow and icy roads proved a serious handicap to visitors, there being 221 visitors, 39 less than in February, 1937. Museum and guide service was given to 138 visitors, 28 guided trips, and 25 museum talks being made, averaging 28 minutes per guided trip and 2.5 persons per party.

The cold, clammy atmosphere of the museum was rather a handicap. The visitors would step in and look around, give a little shiver, and

leave the museum attendant talking to himself. On the other hand, in the summer time, they seek the cool retreat of the museum building after a trip along the cliff houses with the sun bearing down.

ANTELOPE

Unique among the antelope of the world, among which it has no near relatives, the pronghorn, because of its beauty of coloration and its grace and fleetness, claims the attention of sportsmen and nature lovers alike. It is a smaller and slenderer animal than the larger forms of the Virginia deer. Its hair is coarse and brittle, and the spongy skin lacks the tough fiber needed to make good buckskin. Both sexes have horns; those of the female being smaller and slenderer. One of the peculiarities of this antelope is its habit of shedding the horns every fall, but unlike the deer and elk which possess true antlers, the complete horn is not shed, only the outside shell, leaving a bony core.

The conspicuous rump patch is formed of long, pure-white hairs and, when the animal becomes excited or alarmed, these hairs are raised on end to form two great chrysanthemum-like rosettes that produce an astonishingly conspicuous spot which acts as a signal of alarm. The power to raise these hairs has been noted in fawns when only a few days old. Even when these hairs are not erected, this patch is conspicuous at a distance of one to two miles, as the antelope gallops away. Should the animal suddenly halt and face about to look back, as is a common custom, its general color blends with that of the background and it vanishes from sight as if by magic.

Early explorers discovered antelope in abundance over a vast territory extending from near the present town of Edmonton, Alberta, Canada, south to near the valley of Mexico, and from central Iowa to California on the Pacific Coast. Great bands containing thousands of animals roamed the plains of the "Great American Desert" where they mingled with vast herds of Bison or buffalo. So abundant were they that it has been estimated that on the great plains they equalled the buffalo in numbers. Now, reduced to a pitiful remnant of their former numbers, they exist only in widely scattered areas where they are constantly decreasing. Considerable numbers of pronghorns are still found in Wyoming, Nevada, eastern Oregon, and New Mexico, and public sentiment as a whole is so strongly in their favor that there is hope that they may long remain in these areas.

Antelope present a unique study when considered as a game species and from a game management point of view. Apparently of a highly nervous temperament, they do not thrive and increase in enclosures, even in large game preserves, as do deer and elk. Their confinement apparently has some bearing on their reproductive processes and reduces their rate of propagation.

Every wild species of game has certain fixed habits which govern the reproductive process and determine its maximum rate of increase. Antelope, for example, are polygamous, reproduce each year from the age of two years, and average two fawns, hence they could increase during the same period of three years to ten, provided there were no casualties. This potential maximum rate of increase is, as nearly as we know, a fixed property of this species, and each other species likewise has its own fixed maximum breeding or reproduction potential. In determining the actual rate of increase, the logical method would be to take the census of a given area, and in doing this, unless the area on which the census is to be made is very small, the census must use samples instead of attempting a count of the whole area. These samples must either be selected so as to be representative of the whole, or they must be so numerous that their abnormalities will be averaged out. The accuracy of the census will depend on the number of samples, the skill with which each is selected, and the skill with which the enumeration of each is made.

The method of enumerating antelope and the season of attempting it must be adapted to their habits, as they gather in herds of more or less fixed composition, and if these can be found on open ground or can be flushed so as to be counted while running, the census problem would be solved. This method is used quite extensively in securing a count of the elk in Yellowstone National Park. A census of the antelope of New Mexico was taken in 1927. The herds were small and in isolated areas, and therefore the maximum number seen constituted a census. The census showed 2,950 antelope in the state, or one antelope per 42 square miles. The actual inhabited range is about 4,650 square miles; thus a density of one antelope per two square miles is established on the actual range.

The travel radius of antelope is very small, perhaps not over one-half mile a day, excepting under adverse conditions when this distance would be considerably increased. Their radius over a period of a year at the most is not over 35 miles and the ideal range consists mainly of grassland and a little brush land. Homesteaders, often confronted with extreme poverty but with an excess of idleness, managed to remain on grass lands long enough to exterminate most of the antelope. In instances of this kind where a species falls below the minimum population unit, it fails to thrive or respond to protection. The frequent failure of antelope to "come back" even under completely closes seasons is a case in point. Such failures have been attributed to the species having fallen below its "point of resistance". The actual nature of this phenomenon may be accounted for under a theory advanced by reliable frontiersmen that antelope herds of less than 12 or 15 usually do not fight off wolves or coyotes, but when attacked will stampede and scatter so that the weak individuals are readily cut down. This also brings up the question as to whether coyotes do pick on the weak ones or prefer a nice, fat yearling to older animals. Several instances of this kind

have been known to occur in Glacier National Park when coyotes in pursuit of Big Horn Sheep would ignore an old weak ewe and take a spring lamb or a yearling instead. It is logical to think herds of 15 or more antelope could easily stand their ground as a unit, bunching up and fighting off attacking predators.

Extreme drought in some localities has at times seriously menaced the existence of antelope, but such danger is usually the result of excessive grazing. Antelope are hardy animals and when they die of starvation, range conditions are serious. Although there is little doubt but that they are able to dispense with water altogether where there are neither springs or pools, but where cactus abounds, they do drink during the dryest and hottest periods when water is available. They can and do thrive on succulents alone. A case in point is known where a herd in Wyoming went to water every day. Another herd thrived in the Salada Desert of Lower California where the only water for a hundred miles was in wells dug down vertically for 12 or 15 feet. Although antelope are not present in Bandelier National Monument, they are a native of the State of New Mexico and, under the present efficient game regulations, the state should show an increase in the antelope herds in future years.

*****SWM*****

It was nice to have Cy at headquarters and get some of his problems talked over.

We have received the allotment to rebuild the shop at Bandelier. This shop was lost by fire a month ago and the CCC camp can hardly function without it.--F. P.

*****SWM*****

BANDELIER CCC

By H. B. Chase, project superintendent, Santa Fe, New Mexico.

During the month all pipe connections were made and the pipe lines covered to the new 20,000 gallon concrete storage reservoir making this a 100 percent completed project.

Wall construction of the Lobby and Sales Room (Unit No. 2 of the Hotel Development) has been completed to lintel height this month; all window frames have been set and the masonry work on the three fireplaces has been almost completed.

All lintels and vigas have been installed in the Employee's Dormitory (Hotel Development) and the sheathing has been laid. This unit is now ready for the laying of the roofing felt and the mopping on of asphalt.

The carpenter crew has finished eight new pieces of furniture with the exception of staining. Part of the carpenter crew has been busy hewing lintels and corbels for Units No. Two and Three of the Hotel Development. During the entire month there has been a large crew at work in the rock quarry, quarrying and shaping building stones for use in the Hotel Development. A small crew spent a major part of the month preparing lintel material and vigas for use in Units Two and Three of the Hotel Development.

Work upon the ruins, under the Ruins Stabilization Project, was completed in all details during the latter part of January, subject to inspection by the Headquarters Archaeologist.

*****SWM*****

The CCC camp at Bandelier has been doing its usual fine work and the lodge unit is taking shape. Hub Chase and his boys are giving us something there the Service can well be proud of.--F. P.

*****SWM*****

BANDELIER FORESTRY

By J. T. Fulton, forestry foreman,
Santa Fe, New Mexico.

FIRE PRESUPPRESSION

Just recently I completed the organization plan for fire protection this coming summer. About the only addition to this plan provided for classes to be held in fire suppression work for foremen, leaders, and lookouts. In the case of the foremen's school, a better understanding of our organization, a more thorough knowledge of what constitutes good fire fighting, and a better knowledge of the country will be imparted to the men. In the case of the leaders' school, I am going to endeavor to make better straw bosses of them. The purpose of holding our lookout school is that we are going to have a lookout point of our own and, in order to properly man this lookout point, a selected group of enrollees will be taught the duties of a lookout. From this group it is expected to obtain two men who will be efficient as lookouts. At the close of these schools, we will hold a theoretical fire, putting into use the knowledge obtained. It is felt that this practice, and the criticism of what occurs, will put the whole organization on its toes at the very start of the fire season.

In addition, we expect to make several improvements in the forest for purposes of fire protection. The primary one is our lookout point which is located on the Frijoles Canyon rim near the entrance road. It will be manned by an enrollee who will have an alidade for locating fires and a telephone for reporting. We are certain that this lookout will prove to be an important addition to our fire organization. By having our own lookout, we can have detection service for a longer

BANDELIER FORESTRY (CONT.)

period than we have had previously from the Forest Service lookout, the Dome. Another improvement is a telephone on Corral Point which will improve our communication considerably during emergencies. This new telephone will make a total of two telephones out in the woods, i.e. the old one south of Alamo Canyon and the new one on Corral Point.

In the near future I expect to spend about a week in further preparation for the fire season.

MISCELLANEOUS

For the past month I have been working on the Lobby and Sales Room, Unit No. 2 of the Hotel Development, and finishing the painting of the Museum.

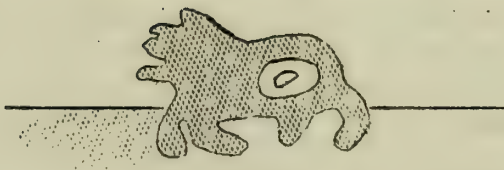
*****SWM*****

SOUTHWESTERN MONUMENTS HAS NEW QUEEN

On February 14, at Florence, Arizona, Park Naturalist King was united in marriage to Miss Hortensia Espinosa of Florence. Superintendent Frank Pinkley of Southwestern Monuments acted as best man.

Following the ceremony, the King and Queen left immediately on a trip to Mazatlan, Republic of Mexico, from which they returned March 2. The Kings are making their home in the Naturalist Residence on the monument where the Queen will add much to the social life of the personnel and their families.

*****SWM*****



HEADQUARTERS

BRANCH OF EDUCATION

By Dale S. King, park
naturalist.

During the month of February, the Educational Staff consisted of Park Naturalist King, Junior Park Naturalist Dodge, and CCC Enrollee Marvin Hale. Junior Archeologist Charlie Steen continued on his temporary relief assignment at Tumacacori National Monument where he has been on public contact duty. Park Naturalist King took annual leave beginning February 12 for the balance of the month.

Following is a resume of the time devoted by the Branch of Education personnel to various projects:

	<u>King - Steen - Dodge - Hale</u>			
	<u>Days</u>			
<u>General Office Work</u>				
Correspondence (King 114 letters; Dodge 49)	.4-1/2	0	2-1/2	0
Conferences and discussion				
With Headquarters staff . . . . .	.1-1/4	0	1/4	0
With visiting scientists and technicians.	1/2	0	1/2	0
With personnel. . . . .	.1-1/4	0	1/2	0
Library (file, issue publications, etc.)	1/4	0	1/4	0
Reports				
Compiling and processing monthly report	.2-3/4	0	9	12
To Washington Office. . . . .	.0	0	1	0
To Region III Office.	1/4	0	0	0
Miscellaneous . . . . .	.0	0	1/4	0
Publicity				
Compiling and processing informational and publicity material. . . . .	.0	0	1/2	2-1/2
Check Region III publicity releases . .	.0	0	0	0
Miscellaneous				
Construction (painting, carpenter work, etc)	0	0	1/2	1
Wrapping and mailing material and supplies requested . . . . .	.0	0	1/4	1/2
Clean-up work . . . . .	.0	0	0	1
<u>Research and Education</u>				
Public Contact				
Preparation and delivery of outside lec- tures . . . . .	.0	0	2-1/2	0
Relief guide duty at monuments. . . . .	.0	28	1/4	1/2
Office visitors (informational)	1/4	0	1/4	0
Museums and Nature Trails				
Acquire and prepare specimens . . . . .	.0	0	1/2	1/2
Acquire equipment and supplies. . . . .	.0	0	1/2	0

BRANCH OF EDUCATION (CONT.)

	<u>King</u>	<u>Steen</u>	<u>Dodge</u>	<u>Hale</u>
Planning. . . . .	.0	0	1	0
Arboretum preparation and planting. . . .	1/4	0	0	2
Visual Education				
Slide library work. . . . .	.0	0		0
Photography				
File prints and negatives . . . . .	.0	0	1/2	0
Taking and processing photos. . . . .	.0	0	1/2	0
CCC Side Camp Educational Program . . . .	.0	0	1/2	0
Faunal observations and bird banding. . . .	1/4	0	4	2
Ruins Stabilization Project Administration.	1/4	0		0
Mobile Unit at Chaco Canyon	1/4	0		0
Bandelier . . . . .	.0	0		0
Aztec Ruins . . . . .	.0	0		0
Field				
Field Trips(Organ Pipe Cactus) . . . . .	.0	0	2-1/2	0
Field Trips(Bandelier,Chaco,Walnut) . . .	.2	0	0	0
Leave				
Annual. . . . .	.14	0	0	0
TOTAL.	<u>.28</u>	<u>28</u>	<u>28</u>	<u>22</u>

PROCESSED MATERIAL

The following pieces were mimeographed during the month:

- 500 copies of CCC Educational Class Report Forms
- 2,000 copies Casa Grande Informational Leaflets
- 2,000 copies Chaco Canyon Informational Leaflets
- 500 copies Bird Banding Band Number Record Cards
- 135 copies "Montezuma Castle in 1894" Article
- 500 copies Tumacacori Museum Informational Leaflet

All of the material except the Tumacacori Museum Informational leaflet were re-runs of previously compiled material.

PUBLICITY

Four hundred of the new Southwestern Monuments map and informational folders were distributed, as follows: 50 to the Tombstone, Arizona, Chamber of Commerce; 150 to the Phoenix Republic and Gazette Information Department; 125 to the Hartford, Connecticut, Automobile Club; and 75 to the Automobile Club of Washington, Seattle, Washington.

Three talks were given to outside groups, as follows:

- February 2. Arizona Museum, Phoenix; audience of 65.
- February 9. Geographical Society, Arizona Teachers College, Tempe, Arizona; audience of 57.

BRANCH OF EDUCATION (CONT.)

February 16: Future Farmers of America group of Coolidge High School, audience of 17.

SOUTHWESTERN MONUMENTS LOAN LIBRARY

Loan and return records were kept up to date, but no time was available for cataloguing accessions. New publications received during the month consisted of 14 books, 39 periodicals, 16 pamphlets, and six reprints.

ACCESSIONS

From Yosemite National Park, we received 26 projection slides, the majority hand colored. These were in exchange for a like number sent from this office. From Miss Hollie Hunsater of Everett, Washington, headquarters received the January, February, and March, 1932, issues of the old Southwestern Monuments Epitaph. These were a particularly valuable accession as they constitute the only copies of the "Epitaph" in our possession. One House Finch study skin, one Kangaroo Rat study skin, and one immature Sidewinder Rattlesnake were put up during the month.

NATIONAL PARK SERVICE VISITORS

Tom Onstott, "Cy" Harkins, Bill Leicht, Dr. F. C. Potter, Gordon Vivian, George Hetherington, and Bill Stevenson.

NEWSWORTHY VISITORS

Clarence Buddington Kelland, Donald Culross Peatie, John E. Fast.

CASA GRANDE CCC SIDE CAMP EDUCATIONAL PROGRAM

With the Park Service personnel and their wives affording a comparatively large teaching force, a great variety of subjects have been made available to the boys of the Casa Grande Side Camp. The boys have taken advantage of this program with the result that every boy in camp is enrolled in at least one class, and many of them attend one or more classes each evening. The time spent in educational work, including the cooking class which is a daily, on-the-job affair carried on by Mrs. Hugh Miller, totals as follows: Auto Repair, 56 man hours; Barbering, 40 man hours; Bookkeeping, 5 man hours; Conversational Spanish, 84 man hours; Cooking, 1920 man hours; Elementary Arithmetic, 120 man hours; English, 27 man hours; General Building Construction, 264 man hours; Mechanical Drawing, 36 man hours; Penmanship, 18 man hours; Photography, 146 man hours; Plane Surveying, 12 man hours; Shorthand, 36 man hours; Southwestern Archeology, 63 man hours; and Typing, 26 man hours.

BRANCH OF EDUCATION (CONT.)

BIRD BANDING

Due to the enthusiastic assistance of Mr. and Mrs. J. E. Fast of Oak Park, Illinois, and to the "leg work" of Enrollee Marvin Hale, it was possible to band and keep up to date all records on the following birds:

Species	New	Repeats	Returns
*Bluebird, Chestnut-backed----	6	0	0
Dove, Inca-----	2	1	0
Dove, Western Mourning-----	2	0	1
Finch, House-----	106	15	10
Phoebe, Say-----	1	1	2
Quail, Gambel-----	25	83	1
Sparrow, Gambel-----	146	216	26
Thrasher, Bendire-----	2	0	0
Thrasher, Crissal-----	1	17	1
Woodpecker, Gila-----	0	1	0
Wren, Sactus-----	2	1	0
Wren, Rock-----	1	0	0
Total-----	294	328	41

Total birds handled during the month, 663.

*First banding record of this species for Casa Grande N. M.

As an experiment, 50 House Finches captured in the ramadas on the evening of February 24 were taken to Tucson and released at ten o'clock the following morning. The object of the experiment is to determine how many, if any, of the birds return to the monument, a distance of 67 miles (by highway). In the near future the finches in the ramadas will be captured again to determine the answer to the above question.

Mr. J. E. Fast has kindly compiled the following synopsis of this month's returns (birds not captured for at least three months).

* Indicates bird captured at least once during season.

Returns	Season extending from July 1 to June 30			
February, 1938.	1934-35	1935-36	1936-37	1937-38
1 Crissal Thrasher.	*	*	*	*
1 Mourning Dove		*		*
1 Gambel Quail.		*		*
1 Say Phoebe.		*	*	*
1 Say Phoebe.		*		*
1 House Finch		*	*	*
4 House Finches		*		*
3 House Finches			*	*
1 Gambel Sparrow.	*	*		*
3 Gambel Sparrows		*	*	*
17 Gambel Sparrows.		*		*
3 Gambel Sparrows			*	*

There were, in addition, four birds reported as returns for technical reasons which were caught this season only, but with an interval of three months or more between captures.

*****SWM*****

MOBILE UNIT

By Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

Mr. Reed and I arrived back in Chaco Canyon late Monday. We found that Custodian Mac and Leader Dan Quiver had been doing right by our Nell, the Mobile Unit. They hadn't sold any of the equipment and all of the men were at work. Just before leaving for Coolidge, we had shifted part of the operations from the southeast corner, where most of our work has been concentrated, to the front tier of rooms on the west side. This is the area where many of the walls have fallen so low as to be no longer distinguishable. There is also here a far greater accumulation of wind-blown material than on the east side. By the time we returned, nearly all of this area had been cleaned up preparatory to repairing the walls.

We are at this writing running three separate gangs on the walls and a fourth is straightening out the drainage along the front of the ruin. One crew is doing a combined support and capping job on the east side on a two and three story room, No. 258. A second crew is also doing a combined support and capping job on the southeast side, Room 171, also two and three stories. The third and largest crew is on wall repair in the front rooms on the west side. There are sixteen rooms in this area, numbered 142 to 340. This is mainly all one story though some of it is on the second level.

This month we have done only one large wall repair job. This is on Room 241 where sixteen cubic yards of masonry were laid in repair and capping patched wall. Combined support and capping jobs are in progress on rooms 258 and 171. Here eighteen cubic yards have been laid. This is masonry which was built up to catch overhangs and support cracked walls. Exposed edges and tops of these supporting sections are laid in Bitudobe. Of straight capping, 67 square yards were laid on rooms 168 to 174 inclusive.

This is a drop in actual yardage from last month and the job sheets also show a slight increase, one fifth man-day per yard, in the amount of time necessary to lay a completed yard. This increase is due mainly to unsettled weather conditions. When conditions were unfavorable to laying masonry, the men were put to gathering and sorting rock. We now have enough rock on hand to last at least a month and a half at the rate we've been using it in the past.

*****SWM*****

It was a pleasure to have Gordon and Mr. Reed in the office for a short session and talk things over with them during the month. The mobile unit is doing some fine work on Pueblo Bonito and we hope it may continue its work for several years among our southwestern monuments.--F. P.

*****SWM*****

VISITOR NOTES

By The Boss.

February proved a good month so far as number of visitors was concerned. As nearly as we could tell we had 20,224 visitors to the Southwestern Monuments as against 15,661 during February of last year. Of the 4,653 gain, we should credit at least half to the mild and pleasant weather over the district which allowed more visitors to get to us than last year when the weather was bad. The remainder might be credited to the normal increase. One rather surprising thing is the drop of 1,000 visitors at Tumacacori whereas the other monuments show more or less gain in almost every case. Total attendance was a bit better than January which showed a total of 19,191.

With the 20,224 visitors we made 12,934 informational contacts or 63%. This is not so good as last month when we made a 72% contact nor was it so good as last year when we made 78%.

The figures indicate that there were about 11,734 visitors who were not contacted, about 9,000 of them being accounted for at White Sands, Saguaro, and Capulin, and the remainder in scattered lots of less than 300 down to 14 at the other monuments.

Of the nearly 13,000 informational contacts, we had 8,465 visitors on 1,511 field trips and 4,469 visitors on 692 museum trips. The average party in the field trip has fallen from 6.6 persons last month to 5.6 this month. The average party in the museum falls from 7.5 persons last month to 6.4 persons this month.

The average field trip time was 34.6 and the museum time was 21.8; both being below last month and last year. As we have mentioned elsewhere in this report, there has been a speeding up on the part of the visitor during February for which we have not been able to account.

If we are entering a wet spring season, as seems to be the case at the time of writing this report, our total will probably fall off in March instead of going above the February total as we would otherwise expect.

Our travel year thus far shows a total of 89,173 visitors as against 71,177 for the same months of the previous year. Since this increase in visitors is coming to monuments where they can do no particular harm, we are not averse to having the total go up over last year.

VISITOR NOTES (CONT.)

If we could get the proposed Anasazi Monument in operation within the next year, I would feel much safer about the future of several of our other monuments where we don't want the number of visitors to climb too fast nor too high.

*****SWM*****

Why do visitors suddenly take a notion to hurry? That is one of the questions that came up this month and thus far we don't know the answer. Along about the middle of February, I checked the average time for the boys guiding at Casa Grande and found that it was running lower than for December or January. This drop in time was not because of a new man or any single man; it was a general drop in every man's time. This caused us to suspect the visitor as the party at fault. At the end of the month the same general condition prevails and we have come to the conclusion that, for some reason, the visitor is speeding up.

The following table shows individual guide figures for the month:

	Days Worked	Parties		Time		No. Visitors		No. of $\frac{1}{2}$ trips per day
		Ruins	Museum	Ruins	Museum	Ruins	Museum	
Rodgers	19	110	71	3813	1445	951	735	9.5
Coyle	24	141	90	4655	1746	1138	737	9.6
Baldwin	11	66	49	2059	686	586	434	10.4
Savage	15	89	66	2558	1158	703	467	10.3
Jones	25	46	55	2052	1417	457	595	4.0
Bicknell	8	10	7	435	174	118	36	2.1
	<u>102</u>	<u>462</u>	<u>338</u>	<u>15573</u>	<u>6826</u>	<u>3953</u>	<u>3004</u>	

Baldwin again tops the list for the number of half trips per day worked, a half trip being either a ruins or a museum trip. Baldwin gets 10.4 half trips or a little more than five round trips per working day. He is followed closely by Savage with 10.3 half trips. Jones and Bicknell were doing outside work most of the time and were guiding in the pinches, relief during meal hours, early morning, after five o'clock, etc. Their working days and number of trips are cut accordingly.

The average trip time for the various guides works out as follows:

	<u>Ruins</u>	<u>Museum</u>	<u>Total</u>
Rodgers	34.6	20.3	54.9
Coyle	33.0	19.4	52.4
Baldwin	31.1	18.0	49.1
Savage	28.7	17.5	46.2
Jones	44.6	25.7	70.3
Bicknell	<u>43.6</u>	<u>24.8</u>	<u>68.4</u>
Average	<u>33.7</u>	<u>20.1</u>	<u>53.8</u>

VISITOR STATISTICS FOR FEBRUARY, 1938 SOUTHWESTERN MONUMENTS

MONUMENT	EMPLOYEES		FIELD TRIPS				MUSEUM TALKS				UNATTENDED		Total Information Contact	Total Travel	Per Cent Contact
	Per. Temp.	No.	Att'd Time	Av. Att'd Time	No.	Att'd Time	Av. Att'd Time	No.	Att'd Time	Av. Att'd Time					
Arches	1	--	--	--	--	--	--	--	--	--	35	--	--	25	--
Aztec	1	--	104	683	2730	6.5	35.8	111	709	2910	6.3	26.2	80	1393	610
Bandelier	2	2	27	69	1973	2.5	71.0	25	69	380	2.7	15.5	52	138	221
Canyon de Chelly	1	--	5	21	700	4.2	72.0	--	--	--	--	--	24	21	45
Capulin Mountain	1	--	--	--	--	--	--	--	--	--	--	--	750	--	750
Casa Grande	2	4	400	1563	8.5	33.7	338	3004	6828	8.8	20.1	274	6957	4227	16
Chaco Canyon	1	--	6	30	1303	3.9	74.0	13	65	650	3.6	36.1	221	146	301
Chiricahua	1	2	51	200	2870	3.9	56.2	--	--	--	--	--	202	200	402
El Morro	1	--	20	75	815	3.8	54.7	6	19	350	3.2	58.3	14	64	50
Gila Cliff	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gran Quivira	1	--	37	135	4205	3.6	59.5	--	--	--	--	--	--	135	135
Hovenweep	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Montezuma Castle	2	--	105	235	6105	3.8	58.1	91	259	2165	2.8	23.3	167	554	466
Natural Bridges	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Navajo	1	1	1	3	120	3.0	120.0	--	--	--	--	--	--	3	3
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Pine Spring	1	--	21	39	578	1.8	27.5	--	--	--	--	--	41	39	80
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Saguaro	--	--	--	--	--	--	--	--	--	--	--	--	3500	--	3500
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	--	150	--	150
Tonto	--	1	145	410	5230	2.9	40.1	79	276	1315	3.5	16.6	442	686	664
Tumacacori	2	--	53	1516	9060	4.8	23.6	--	--	--	--	--	279	1516	1795
Walnut Canyon	1	--	5	16	85	3.2	17.0	24	67	550	2.8	22.9	60	83	127
White Sands	2	--	100	1000	2000	5.0	1000	--	--	--	--	--	4704	1000	5704
Wupatki	--	--	--	--	--	--	--	--	--	--	--	--	39	--	39
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	22	10	1511	8465	52381	5.6	34.6	692	4469	15148	5.4	21.8	11734	12924	20224
Last month	20	10	1574	8472	51594	6.6	40.4	736	5593	16428	7.5	22.3	10609	14065	19191
February, 1937	14	10	1181	8011	48196	6.7	40.8	632	3863	10280	6.1	16.2		12351	15661

VISITOR NOTES (CONT.)

The average for January was 35.7 for the ruins, 23.2 for the museum and 58.9 for the total. The loss is 2.0 minutes on the ruins trip and 3.1 on the museum trip.

Why should 4,000 February visitors suddenly decide they must hurry up?

*****SWM*****

Last month, Thursday proved to be the low day of the week. In February, Tuesday was the poorest day. We averaged half trips per day as follows for the month:

Sunday-	- - -	-37.5	half	trips	per	day.
Monday-	- - -	-25.7	half	trips	per	day.
Tuesday-	- - -	-21.4	half	trips	per	day.
Wednesday-	- -	-23.2	half	trips	per	day.
Thursday-	- -	-24.4	half	trips	per	day.
Friday-	- - -	-23.7	half	trips	per	day.
Saturday-	- -	-26.7	half	trips	per	day.

*****SWM*****



THE Supplement

S-M MONTHLY REPORT

MAJOR INSCRIPTIONS AT EL MORRO

By Robert R. Budlong

(At the time of Lieutenant Simpson's visit in the year 1849. Also including the inscriptions left by Lieutenant Simpson, Kern, and W. Bird).

The inscriptions listed herein are those of major interest to visitors and, with but a few exceptions, have been photographed by the Chief Photographer of the National Park Service. The Department, therefore, has prints that may be used for purposes of comparison, for observations on types of carving, etc.

These inscriptions are here grouped into two lists: (1), those on the north side of the point (the N.E. point of El Morro) and; (2), those on the south side of the point. They have been so arranged because Lieutenant Simpson and his party first climbed the talus slope on the north side, not going to the south side until somewhat later.

The Spanish inscriptions are given both in Spanish and in a literal English translation. In each case there follows a brief summary of matters of interest connected with the story of the inscriptions, those who carved them, etc. Following this, references to source material have been given wherever practicable. This is not intended as a complete bibliography, by any means. In many instances I have quoted from "The History of Hawikuh" by F. W. Hodge (1937), this being a recent authority, and have omitted older references. The attempt has been made to keep data as brief as possible, and yet to cover all points that may be desired by one unfamiliar with the inscriptions or their history.

INSCRIPTIONS - NORTH SIDE:

This group of inscriptions is to be found on the north side of the Rock, at the top of a talus slope roughly thirty or forty feet high, and are numbered from 1 to 11, running from WEST to EAST. (Nos. 1 to 10, inclusive, are grouped at intervals of, roughly, six to twelve feet apart, in most cases).

1. R. H. Kern - 1851.
2. Lujan - 1632.
3. Simpson and Kern - 1849.
4. Felipe de Arellano (year probably 1700).
5. Don Juan de Eulate - 1620 (or Nieto, 1629).
6. Juan Paez Hurtado and Joseph Truxillo - 1736.
7. Juan Garcia de la Rivas - 1716.
8. Don Francisco Manuel de Silva Nieto - 1629.
9. Don Martin de Elizacochea - 1737.

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

10. de Arrasain - 1737.
11. Martinez - 1716. (This inscription is about half-way down the talus slope, on its eastern extremity).

From the Martinez Inscription to point of rock (N.E.) is roughly 220 feet.

INSCRIPTIONS - SOUTH SIDE:

Here I have given, roughly, distances separating this group of inscriptions. In this case the numbers run from EAST to WEST.

1. de Vargas - 1692. (approx. 192 feet west of point of rock).
2. Simpson, Kern, & W. Bird - 1849. (Approx. 60 ft. west of No. 1).
3. Drawing of buffalo (approx. 8 ft. west of No. 2).
4. Onate, 1605. (approx. 15 ft. west of No. 3).
5. Basconzelos - 1726 (this is under Onate's inscription).
6. Arechuleta, Martin Barba, Ynojes - 1636 (approx. 30 ft. west of Nos. 4 and 5).
7. Juldo - 1709 (approx. 54 ft. west of No. 6).

N O R T H S I D E

INSCRIPTION #1:

"R. H. Kern Aug. 29, 1851."

BRIEF DATA:

This was the same R. H. Kern who, with Lieutenant J. H. Simpson, W. Bird, and the trader Mr. Lewis, first visited El Morro, September 17th and 18th, 1849. This present inscription was written on the Rock upon the occasion of Mr. Kern's passing by El Morro with the Sitgreaves' Expedition of 1851.

REFERENCE:

(Bancroft) "It was in 1851 that the first government exploration was made across northern Arizona. Captain L. Sitgreaves was ordered to follow the Zuni, Colorado, Chiquito, and Colorado rivers down to the gulf. With a party of twenty he left Zuni in September....." (Foot-note:) Sitgreaves, Report of an Expedition down the Zuni and Colorado Rivers, by Captain L. Sitgreaves, Corps Topographical Engineers. Accompanied by Maps, sketches, views, and illustrations. Wash. 1853..........The party consisted of Capt. Sitgreaves, Lieut. J. G. Parke, Dr. S. W. Woodhouse, physician and naturalist, R. H. Kern, draughtsman, Antoine Leroux, guide, 5 Americans, and 10 Mexicans, packers, etc. An escort of 30 men of the 2d artill. was commanded by Maj. H. L. Hendrick."

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

(Bancroft) "Sitgreaves' exploration was followed in 1853-4 by the 35th parallel Pacific Railroad survey under Lieutenant A. W. Whipple. With Lieutenant J. C. Ives as chief assistant in a corps of twelve, and an escort of the 7th U. S. Infantry under Lieutenant John M. Jones, Whipple, having completed the survey from Fort Smith across New Mexico, left Zuni on November 23, 1853. His route was for the most part somewhat south of that followed by Sitgreaves, his survey covered the same region....The resulting report, as published by government, though of similar nature, is very much more elaborate and extensive than that of Sitgreaves.....

(Footnote) "Whipple, Report of Explorations for a Railway Route, near the Thirty-fifth parallel of North Latitude, from the Mississippi River to the Pacific Ocean, by Lieutenant A. W. Whipple, Corps of Topographical Engineers, assisted by Lieutenant J. C. Ives, etc., 1853-54."

INSCRIPTION #2:

"Se pasaron a 23 de Marzo de 1632 anos a la benganza de muerte del Padre Letrado. Lujan."

TRANSLATION: "They passed on the 23 of March of 1632 years to the avenging of the death of Father Letrado. Lujan."

BRIEF DATA:

Father **Letrado**, a missionary stationed at the Zuni pueblo of Hawikuh (now in ruins) was murdered by the Zunis on February 22, 1632. Word of his murder reaching Santa Fe, a punitive expedition was sent against the Zunis. One of the soldiers with that expedition, Lujan, carved the inscription upon El Morro on their way to Hawikuh. As to the punishment administered the Zunis, no exact records have yet been found, though, as Hodge indicates, it is probable that they were punished many times over, but the data not included in official records.

REFERENCE:

(Hodge): "...Fray Francisco Letrado, the first missionary martyr at the hands of the Zuni....

On Quinquagesima Sunday, February 22, 1632 (a hundred years to a day before Washington was born), the Indians appeared to delay in attending Mass. Fray Francisco, impatient, and probably of a fiery and zealous nature, went out to urge them. He met some idolators, and began to chide them. He saw at once that they were bent on killing him, so he knelt down, holding in his hands a small crucifix, and continued the remonstrance while in this attitude. The Indians shot him dead with arrows, carried off the corpse and scalped it, parading the scalp afterward at the usual dances.

(Footnote: Vetancurt (a) 52-53; (b), 320-321. See also

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

Bandelier (c), 96-99; (e) II, 330-335; Wagner (a) 120, 122. According to Frias, quoted by Wagner, the Father's head was hacked to pieces with bludgeons, and in the revised Memorial Benavides says that they crushed his head with war clubs (macanas), and inflicted on him great cruelties.)

"After the murder of the friars, the Zuni abandoned their houses and fled to the "Penol de Caquima," that is, Towayalane, or Corn mountain, at the base of which the pueblo of K'iakima ("Caquima") stood."

(Footnote: This great mesa, rising a thousand feet above the valley, was the tribal refuge when Coronado invaded the Zuni country in 1540, as it was also during the Pueblo revolt of 1680 and also in 1699 and 1705. Consult Bandelier (3), I, 134-135.)

"Almost immediate steps were taken to avenge Letrado's death. Governor Francisco de la Mora Ceballos dispatched to Zuni a small party of soldiers under Maestro de Campo Tomas de Albizu, together with a few priests. Stopping at El Morro, a member of the party carved the....inscription.Therefore within a month's time news of the murder had found its way to Santa Fe and the avenging party was within a day's journey of Towayalane. The missionaries were admitted to the mesa-top and the Indians promised to be good thenceforth. There is reason to believe, however, from events that transpired later in the century, that, were the whole story known, the Indians did not escape with this simple gesture...."

INSCRIPTION #3:

"Lt. J. H. Simpson USA & R. H. Kern Artist, visited and copied these inscriptions, September 17th 18th 1849."

BRIEF DATA:

This records the visit made by Lieut. Simpson, a Lieutenant with the Corps of Topographical Engineers, and a member of Colonel Washington's expedition into the Navajo Country in 1849. Extracts from Simpson's Journal are given elsewhere with this report. Simpson, accompanied by the artist R. H. Kern, Simpson's orderly W. Bird, and the trader Mr. Lewis, diverged from the main body of troops as they passed between El Morro and the Zuni Mountains, (returning to Santa Fe) and came to see the rock. (Mr. Lewis had met the troops that morning, and had volunteered to conduct Lieut. Simpson to this rock, about which nothing was known by Americans (officially) before this time.) The men reached the rock about noon, Sept. 17th, 1849. Kern and Simpson made drawings of all the prominent inscriptions they could find. Also sketches of the rock. They climbed the rock and inspected one of the ruins on the top. The party camped off the N.E. point of the rock for the night, arising at dawn the following morning, and resuming their copying of inscriptions at daylight. By eight o'clock a. m. they had completed their drawings, and were on their way to reach the main body

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

of troops, which they did by dark that night.

Simpson's Journal was made a Senate Document, illustrated by lithographs of Kern's drawings. It is the first American record of the existence of this rock and of the inscriptions. The drawings, I believe, are now in the Smithsonian Institution in Washington. Simpson's Journal is a classic.

The drawings of the inscriptions are not entirely accurate. In many cases various drawings of inscriptions have been incorporated to resemble one single inscription. The translations of the inscriptions, given in the report are, in the main, inaccurate. The drawing of Onate's inscription gives the date as 1606, as do many histories, which is not correct. The date, as indicated on the page of this present report, is properly 1605.

REFERENCES:

Extracts of Simpson's Report which are on file in the Coolidge Office.

INSCRIPTION #4:

"Soy de mano de Felipe de Arellano a 16 de Setiembre, Soldado... (rubie)."

TRANSLATION: "I am of the hand (that is, "this was written by the hand") of Felipe de Arellano on 16 of September, Soldier."

BRIEF DATA:

On this I have, as yet, no official records. Apparently, however, this is the Arellano who, with two companions, was murdered at Zuni in the year 1700.

REFERENCES:

Have not yet been able to get to archives at Santa Fe; I have no accurate references on this inscription -- that is, ones I would wish to quote.

INSCRIPTION #5:

"Soy Capitan-General de las provincias del Nuevo Mexico por el Rey nuestro Senor. Paso por aqui de buelta de los pueblos de Zuni a los 29 de Julio ano de 1620 (?) y los puse en pas a su pedimiento pidiendole su favor como basallos de su magistad y de nuebo dieron la obediencia todo lo que hizo con el agasax e selo y prudencia como tan christianisimo (obliteration) tan particular y gallardo soldado de inacabable y loada mem(ria) (apparent obliteration).

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

TRANSLATION:

I am Captain-General of the provinces of the New Mexico for the King our Lord. Passed by here on return from the pueblos (towns) of Zuni on the 29th of July of the year 1620 (?) and he put them in peace, upon their petition, asking him his favor as vassals of his Majesty, and anew they gave the (ir) obedience all of which he did with clemency and zeal and prudence as a most Christian-like (obliteration) most extraordinary and gallant soldier of unending and praised memory. (Apparent obliteration).

BRIEF DATA:

Considerable difference of opinion exists among the various authorities relative to this inscription. It bears no signature. A scar beneath the inscription indicates there may have been a signature, at one time, which later was eradicated. Hodge holds that the date is 1692; others, including Bloom and Hammond claim it is 1620. I think Hodge is in error. Apparently the figure is "0", followed by the letter "y" which is the Spanish word "and". This being the case, the inscription is probably that of the Governor Dan Juan de Eulate.

The inscription is especially interesting in that running through the entire thing are long scratches. Apparently some soldier who served beneath the general, or someone who knew him well, came along, read the "modest" record, said "Oh, yeah?" and, with his dagger, scratched through the entire thing. One particular group of words, however, was deeply eradicated, and there is evidence that there may have been a signature, which also was completely eradicated. The missing word or words in the body of the inscription have never been known. However, I believe there were three words, of which I have found all but one -- a word of three or four letters. A report is being prepared on this at the present time.

This inscription is the longest one yet found on the rock. It is carved on a slab of rock, still a part of the cliff, that is cracked to a height of, apparently, over a hundred feet. A concrete slab was poured at the foot of the slab some years ago, to brace it. It will fall some day.

REFERENCES:

Hodge (History of Hawikuh. 1937) gives the following relative to the "Eulate" inscription. In this record he is assuming that the inscription is not that of Eulate, but of the Governor Silva Nieto, whose inscription bearing his name appears upon the rock in another place. Hodge is probably in error:

"....It is not known precisely when Perea and Governor Silva Nieto reached Hawikuh, but it was about the 25th. or 26th. of July, as on the 29th. of that month the Governor seems to have carved his inscription (anonymously) at El Morro on his return journey to Santa Fe...."

(Footnote:) "See Hoopes and Broomall; Lummis, 178; Bandelier (e), 330-331; Barth, Bloom (d. 52) and Barth believe that the date of this inscription is 1620, not 1629, and that it therefore was made by or for Governor Eulate. But the "O" of the year, aside from its fusion with the "y" following, giving it somewhat the appearance of "9", seems to have been altered, as it is cut more deeply than the other figures of the date. Moreover, there are other reasons for assuming that the inscription was made in 1629 at the instance of Silva Nieto, as follows: (1) there was only a mere handful of missionaries in New Mexico in Eulate's time, hence it would hardly have been possible to extend the missions in 1620; (2) there is no evidence of any attempt to convert the Zuni villagers prior to 1629; indeed in 1620 the pueblos of Zuni were officially reported to be gentile "to whom no spiritual aid in doctrine is being given on the part of His Majesty, nor any temporal aid in order to defend them from their enemies" (Bloom, a, 365); (3) the date of the inscription of July 29 covers the period of Silva Nieto's visit with Perea's missionaries to Zuni; (4) both Perea and Benavides wrote of troubles at Cibola (Hawikuh) immediately after the establishment of the mission there, such as would have caused Silva Nieto to return before his journey to Santa Fe was completed; (5) rather than supporting missionary efforts, Governor Eulate encouraged the Indians in their idolatry (see note 211). Incidentally it may be said that Eulate and Perea were having their troubles at Santa Fe during this period (Bloom (a), 357 ff.; (c) 288 ff.; Scholes (e) passim). Yet the whole matter remains more or less a mystery. If it be true that the anonymous inscription was made in 1629 and therefore is ascribable to Silva Nieto, it is strange that no reference is made therein to the establishment of the Faith on that occasion, as in the case of the hope expressed by Silva Nieto in the inscription made while on the way to Zuni in August. Altogether the text of the inscription seems to favor Eulate, while the historical facts strongly suggest Silva Nieto as the author. The fact that the Zuni principal was given the baptismal name Agustin does not help us, as the day of San Agustin is August 28 -- doubtless some time after the actual establishment of the Hawikuh mission. As will be noted, the day of the August inscription appears to be 5, yet it may be 9; either would suit the case."

Bancroft is widely in error. He attributes this inscription to Governor Onate, as follows:

"Among the inscriptions copied by Simpson from El Morro is one to the effect that the governor passed that way on July 29, 1620, returning from a successful tour of pacification to Zuni...." (Bancroft was writing about Governor Onate).

Nothing being positively known relative to the name of the man who carved the inscription, or to whom it refers, we give visitors both versions (Hodge's and that of Bloom, Barth, etc.).

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

INSCRIPTION #6:

"El dia 14 de Julio de 1736 Paso por aque el General Juan Paez Hurtado, Visitador. (rubric)

"y en su companie el Cabo, Joseph Truxillo (rubric).

TRANSLATION:

"The day 14 of July of 1736 passed by here the General Juan Paez Hurtado, Inspector."

"and in his company the Corporal, Joseph Truxillo."

BRIEF DATA:

This inscription is amusing. While no official records have been found to indicate what happened, it is quite obvious.

The writing is that of two different men. The first inscription (Hurtado) was carved, and a line, or panel, carved completely around it. Later on the second inscription (different "handwriting" altogether) was carved immediately beneath the first, and a line, or panel, carved about three sides of the second inscription, in the attempt to join it to the first, and make the whole thing one inscription. Rubrics of both men appears after their names.

This is undoubtedly what occurred: Hurtado came here, probably with a small body of men, and they made their camp around by the water pool for the night. During their stay, Hurtado wandered around the rock, found a smooth place, and carved the first inscription with his dagger. Some time later -- undoubtedly when he was sure the General wasn't watching -- the Corporal, Joseph Truxillo, came around the north side of the rock, read what the general had written, and (probably with many glances over his shoulder) carved the second inscription immediately below that of the General's. Then he carefully scratched a line around his own inscription in the attempt to make one inscription of the two. Apparently Truxillo wanted the world -- or all who read the inscription later on -- to know that HE was along too.

INSCRIPTION #7:

"Juan Garsy's de la Rivas, Alcalde-Ordinario de primar boto de la villa de Santa Fe Ano de 1716 a los 26 de Augusto y Alguacil-Mayor del Santo Oficio."

TRANSLATION:

"Juan Garcia de la Rivas, Alcalde-Ordinary (Ordinary Alcalde) by first choice (?) (ballot?) of the town of Santa Fe Year of 1716 on the 26 of August And Alguacil-Mayor ("Chief Sheriff") of the Holy Office."

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

BRIEF DATA:

Juan Garcia de la Rivas was a member of the Martinez party on their way northwest to "conquer the Hopi". De la Rivas signed the reports of Governor Martinez as a member of the Cavildo, together with the other members of that body. See Inscription of Governor Martinez (No. 11, north side).

REFERENCE:

"New Mexico Historical Review" Vol. VI, No. 2, April, 1931, (p. 158 et. seq.) "A Campaign Against the Moqui Pueblos", being a translation of Martinez' diary by Colonel R. E. Twitchell, published and annotated by Lansing B. Bloom after Twitchell's death. For further data, see "Inscription - North Side, No. 11 .

INSCRIPTION #8:

"Aqui (llego el Senor y) Gobernador
Don Francisco Manuel de Silva Nieto
Que lo imposible tiene ya sujeto
Su brazo indubitable y su valor
Con los carros del Rei Nuestro Senor
Cosa que solo el puso en este efecto
De Agosto (5? 9? "y Mil"? Seiscientos Beinte y Nueve
Que se bien a Zuni ("Cuni") pase y la Fe lleve."

TRANSLATION:

"Here arrived the Governor Don Francisco Manuel de Silva Nieto, Whose indubitable arm and valor have (has) now overcome the impossible with the wagons of the King our Lord. A thing that he alone put into (this) effect of (5? or 9? or One thousand?) six hundred twenty and nine. That he (or "one") may well to Zuni pass and the Faith carry."

BRIEF DATA:

This is the only inscription upon the Rock in the form of a poem. It was presumably carved upon the rock during an expedition to or from the Zuni country. The last line bears evidence of having been tampered with, so the meaning is not perfectly clear. The year, as given in the inscription appears to be merely six hundred and twenty-nine." Probably a way of indicating "1629" much as we speak of "the 49ers", meaning "1849". Nieto was Governor from 1629-1632 (Bloom). On this expedition friars accompanied the expedition, and the first mission was established at Hawikuh.

REFERENCES:

See "Inscription-North Side, No. 5 "Eulate".

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

Also (Hodge): "The Verdadera Relacion of 1632 states that the governor, Francisco Manuel de Silva Nieto, having returned to Santa Fe with an escort of soldiers from the Apache, among whom two friars had been stationed, the journey to Acoma, Zuni, and Moqui (Hopi) was arranged. With ten carts and four hundred cavalry horses, thirty well-armed soldiers, and with everything important for the journey, the party started from the capital on June 23, 1629, accompanied by the governor and including the Father custodian (Perea) and his companion, the Father solicitor Fray Tomas Manso, five priests and two lay brothers. Leaving Fray Juan Ramirez at Acoma, the others continued to the Zuni settlements, passing on the way the great lava-flow now skirted by the Santa Fe Railway west of Laguna pueblo.....

"But the efforts of Fray Roque de Figueredo and his missionary companions do not seem to have been so successful as Perea's report of the Zuni conversion would indicate, for only a few days after the date of the first inscription, the modest Governor was again at El Morro, recording the following on the famous rock: "(Here Hodge refers to this inscription.)

INSCRIPTION #9:

"Dia 28 de Septiembre de 1737 anos llego aqui El Illustrisimo Senor Doctor Don Martin de Elizacochea, Obispo de Durango y el dia 29 paso a Zuni."

TRANSLATION:

"Day of 28 of September of 1737 years arrived here the most illustrious Senor Doctor Don Martin de Elizacochea, Bishop of Durango, and the day 29 passed to Zuni."

BRIEF DATA:

This records the visit of the Bishop of Durango. It will be observed that the writing is in the same hand as that of de Arrasain (Inscription North Side, No. 10) and that the dates are the same in both instances. de Arrasain was Secretary to the Bishop, and I rather imagine that the actual work of carving the stone would have been left to the secretary.

INSCRIPTION #10:

"El dia 29 de Septiembre de 1737 anos llego aqui el Bachiller Don Juan Ignacio de Arrasain."

TRANSLATION:

The day 28 of September of 1737 years, arrived here the Bachelor Don Juan Ignacio de Arrasain."

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

BRIEF DATA:

de Arrasain was secretary to the Bishop of Durango, whose inscription appears beside that of de Arrasain. (See No. 9, north side). The title "Bachelor" seems somewhat odd. Certainly, with a name like "Don Juan" it might sound appropriate, but, as a matter of fact, de Arrasain was a lawyer, and the "Bachelor" stands for "Bachelor of Law". (Spoils a good story).

As noted in Inscription - North Side No. 9 - the date of de Arrasain's inscription and the writing of both inscriptions are the same. de Arrasain undoubtedly did the carving of both inscriptions.

INSCRIPTION #11:

"Año de 1716 a los 26 de Agosto Paso por aqui Don Feliz Martinez Gobernado y Capitan-General de este raiño a la reduzion y conquista de Moqui y (conversion?) por orden (del) Reverendo Padre Fray Antonio Camargo Custodio y Juez Eclesiastico." (rubric)

TRANSLATION:

"Year of 1716 on the 26 of August passed by here Don Feliz Martinez Governor and Captain General of this realm to the reduction and conquest of Moqui and (conversion? or uniting?) by order of the Reverend Father Friar Antonio Camargo, Custodian and ecclesiastical judge."

BRIEF DATA:

This marks the passing by the Rock of the expedition of Governor Martinez in their campaign against the Hopi (Moqui). The expedition was more or less of a farce. Apparently the Spaniards arrived at the Hopi mesas, and did not care to attempt ascending the Mesas. They appear to have camped and to have taken turns more or less just making faces at the Hopis, who reciprocated. While Martinez' diary records a couple of "battles" they sound most unconvincing. Finally the Spaniards destroyed the Hopi's cornfields and went home. Water was scarce where they were camped, and they could not remain longer, so Martinez claims. This campaign against the Hopi was later brought as one of a group of charges against Martinez.

REFERENCES:

"New Mexico Historical Review" Vol. VI, No. 2, April, 1931, (p. 158 et. seq.) "A Campaign Against the Moqui Pueblos," being a translation of Martinez' diary by Col. R. E. Twitchell, published and annotated by Lansing B. Bloom after Twitchell's death.

(Bancroft) "During Martinez' rule of two years, two campaigns are recorded. In August 1716 the governor marched in person against the

Moquis with 68 soldiers, accompanied by the custodio, Padre Antonio Camargo, the cabildo of Santa Fe, and a force of vecinos from Albuquerque and La Canada.....Two fights occurred in September, the Indians being defeated, if we may credit the diary, with many killed and wounded; but the army, after destroying corn-fields, retreated to Santa Fe, and pretended victories may be regarded as very doubtful. (Footnote:) The return to Sta. Fe was on October 8th. Acc. to Arch. N. Mex., 206-7, the governor accomplished nothing, and the truth which he concealed in his diary came out in his later residencia...."

S O U T H S I D E

INSCRIPTION #1:

"Aqui estubo el General Don Diego de Vargas, quien conquisto a nuestra Santa Fe y a la Real Corona todo el Nuevo Mexico a su costa, Ano de 1692."

TRANSLATION:

"Here was the General Don Diego de Vargas, who conquered to our Holy Faith and to the Royal Crown all of the New Mexico at his (own) expense, Year of 1692."

BRIEF DATA:

This hardly needs any description. A brief one is here given: The Pueblo Indians, after plotting for many years, finally staged the Great Rebellion in the year 1680. They killed many Spaniards -- several hundred -- and drove the remainder out of what is now New Mexico, back down along the Rio Grande into Old Mexico. Santa Fe was partially destroyed, and many of the archives. The Spaniards remained in Mexico until the year 1692. Several ventures were made between the revolt and 1692, but were not successful. Finally, in 1692, de Vargas entered the "New Mexico" and received the submission of the pueblos. This date marks the resumption of Spanish Rule. de Vargas had his troubles in the year following, but 1692 is referred to as the date of the re-conquest of the Pueblos.

REFERENCES:

Hodge, Bancroft, Twitchell, Bloom, etc., etc.

INSCRIPTION #2:

"Lt. J. H. Simpson, USA & R. H. Kern Artist, Septem. 17" & 18" 1849"

Also, to the left of this inscription: "W. Bird 1849."

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

BRIEF DATA:

de Arrasain was secretary to the Bishop of Durango, whose inscription appears beside that of de Arrasain. (See No. 9, north side). The title "Bachelor" seems somewhat odd. Certainly, with a name like "Don Juan" it might sound appropriate, but, as a matter of fact, de Arrasain was a lawyer, and the "Bachelor" stands for "Bachelor of Law". (Spoils a good story).

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MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

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REFERENCES:

Hodge, Bancroft, Twitchell, Bloom, etc., etc.

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"Lt. J. H. Simpson, USA & R. H. Kern Artist, Septem. 17" & 18" 1849"

Also, to the left of this inscription: "W. Bird 1849."

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

BRIEF DATA:

Simpson and Kern left their inscriptions on both sides of the rock. I believe no photograph of this particular inscription is in the official (Washington) files. However, this one also has the name of W. Bird, Simpson's orderly. No other comment is needed here. See Simpson's journal, elsewhere in this report, and Inscription--North side--No. 3.

INSCRIPTION #3:

I do not know that the Department has a photograph of this in their official files. It is not an inscription, nor is it a petroglyph. It is a drawing of a buffalo, and mention of it is only made here because Simpson mentions it in his Journal.

INSCRIPTION #4:

"Paso por aqui el Adelantado Don Juan de Onate del descubrimiento de la Mar del Sur a ló de Abril de 1605."

TRANSLATION:

"Passed by here the Governor Don Juan de Onate, from the discovery of the Sea of the South on 16 of April of 1605."

BRIEF DATA:

This is THE EARLIEST INSCRIPTION TO APPEAR UPON THE ROCK. It is that of the FIRST OF THE SPANISH GOVERNORS, and of the FIRST COLONIZER of the country north of Mexico (that is, "the New México"). Onate is referring to the Gulf of California when he writes of "the discovery of the Sea of the South." Of course, he wasn't the first to discover it, but he did make a trip to it, and was on his return to San Gabriel (which he reached April 25, 1605) when he and his party stopped here. They also had stopped by here on other previous occasions, but no inscription to that effect has been found, to date.

It should here be mentioned that this date, 1605, has long been taken for "1606". Kern and Simpson made that mistake, and many others later on. In fact, the official printed Park Service placards erected before each main inscription when I first came here a year ago, gave the date as "1606". In the event the records in the Department have not been corrected to date, they should be so corrected now.

The inscription has been carved over an old petroglyph.

REFERENCES:

Any good history of the Southwest. Especially Hodge, Bloom, Twitchell, etc. I give a few brief extracts:

(Hodge): "ONATE'S ENTRADA AND COLONIZATION, 1598."

In the meantime, various applications were made for a grant to conquer and colonize New Mexico, and after various difficulties the contract was awarded to the wealthy and influential Juan de Onate, son of Don Cristobal, who, like Juan, had greatly distinguished himself in the service of the King. The march northward from the City of Mexico began early in 1596, but was delayed at various places for official reasons, so that it was not until February, 1598, that the expedition was finally on its way to New Mexico from the Rio Conchos in Chihuahua. The colony consisted of four hundred men, of whom one hundred and thirty had their families, while the equipment included eighty-three wagons and carts, and more than 7,000 head of stock. Reaching the Rio Grande, the expedition proceeded up that stream, through El Paso, and into the settled country of New Mexico. At the pueblo of Santo Domingo, Onate received the submission of the Pueblo Indian provinces on July 7, and on the 11th reached San Juan which became headquarters of the Spaniards until the summer of 1601 when they were transferred to San Gabriel at the junction of the Rio Chama and the Rio Grande. On September 9, 1598, an assembly of Indian representatives of all the country thus far explored was held, and the various pueblos and tribes were assigned to the Franciscan friars for Christianization.....

"Various journeys were made in different directions, including one by Onate himself, commenced on October 6, to the salines and the pueblos east of the Rio Grande, thence westward to Acoma where he rested one day, then, "on the next we set out for the province of Zuni, going to the head of the river which is called De la Mala Nueva, next day four leagues, camping for the night in a forest, without water; next day to the Agua de la Pena (this was another name for El Morro), four leagues. It snowed furiously, the horses stampeded, and some were lost for good. Next day four leagues to a spring which flows to the province of Cuni. We saw three ruined pueblos. The following day, which was the feast of All Saints (November 1), three leagues to the first pueblo of the people belonging to the province of Zuni, which consists of six pueblos. The Indians received us with a large quantity of maize, tortillas, and rabbits....etc.etc....." On October 7, 1604, however, the governor again set out with thirty soldiers, for the west, exploring the country as far as the Gulf of California. A member of the party was the comisario Fray Francisco de Escobar, who wrote a Relation of the expedition and in 1605 became custodio of the missions of New Mexico..... Onate continued to the province of Moqui (Hopi).... The party returned by way of the Zuni pueblos, as above noted, and on APRIL 16, 1605, ENCAMPED AT EL MORRO, or Inscription Rock, the "Agua de la Pena," WHERE ONATE LEFT HIS INSCRIPTION, the first to be made by a white man on that famous monument. San Gabriel, to which the capital had been removed from San Juan in 1601, was reached on the 25th...."

(Bancroft) "Onate reached tide-water (Bancroft is writing of Onate's trip at the point where he has encountered the Colorado River) on January 23, 1605, and on the 25th, with the friars and nine men, went down to the mouth. Here he found a fine harbor, formed by an island in the centre, in which he thought 1,000 ships might ride at anchor. That

MAJOR INSCRIPTIONS ON EL MORRO (CONT.)

the sea extended indefinitely northwestward behind a range of hills, the Spaniards believed on the authority of the Indians; and this belief had much to do later with the opinion that California was an island.....The rest of the company came down to see the port and then the explorers began their return march by the same route to New Mexico. ...They had to eat their horses, but arrived safe and sound at San Gabriel on the 25th of April (1605).

MISCELLANEOUS:

A good idea of the time, compared to American settling on the Atlantic coast, may be made by such dates as:

JAMESTOWN: The first permanent English settlement in America. Founded May 14, 1607. (Onate's inscription two years and one month earlier)

LANDING OF THE PILGRIMS AT PLYMOUTH, MASS.: December 21, 1620. (Onate's inscription carved on El Morro nearly 15 years before the Mayflower reached the coast of America and the pilgrims landed at Plymouth Rock.)

INSCRIPTION #5:

"Por aqui pazo el Alferes Don Joseph de Payba Basconzelos el ano que trujo el Cauildo del Reyno a su costa a 18 de Febrero de 1726 Anos."

TRANSLATION:

"By here passed the Ensign Don Joseph de Payba Basconzelos the year that he brought the Cauildo (cabildo -- "corporation" or "city council") of the realm at his expense on 18 of February of 1726 years."

BRIEF DATA:

I have been unable to trace this man to date. Apparently, however, he was acting as guide to the "Cabildo" on an expedition into this part of the country--very likely to Zuni.

The date of this inscription is often mistaken for "1526". This mistake arises from the fact that for years a scratch in the sandstone just above the figure "7" was pencilled with the remainder of the inscription. This would, of course, if correct, be long in advance of Coronado's trip of 1540. However, close examination will reveal that the scratch is not a part of the inscription. It is broad, shallow, and indistinct at either end, and was undoubtedly made by some plant (such as the hard tip of a yucca leaf) or branch blowing in the wind and rubbing against the rock. I have photographs showing where this has occurred at other places on the cliff, where some branch has vibrated in the wind. Such marks are sometimes over an inch in depth. This

MAJOR INSCRIPTIONS ON EL MORRO (CONT.).

scratch is no longer pencilled. The inscription proper has been carved in deeply, with narrow lines, well-defined at either terminus.

INSCRIPTION #6:

"Pasamos por aqui el Sarjento-Mayor y el Capitan Juan de Arechuleta y el Aiudante Diego Martin Barba y el Alferes Agustin de Ynojos ano de 1636."

TRANSLATION: :

"We passed by here the Sergeant-Major and the Captain Juan de Arechuleta and the Adjutant Diego Martin Barba and the Ensign Agustin de Ynojos year of 1636."

BRIEF DATA:

The identity of the Sergeant-Major is not definitely proven as yet. Bandelier thought he may have been Francisco Gomez. I have as yet no accurate data on this particular trip, though Arechuleta, Diego Martin Barba and Ynojos are well known in history. Bloom ("New Mexico History and Civics") gives an account of the execution of Arechuleta and Barba, and apparently they were the same men whose names appear in the above inscription. Apparently they were held responsible for allowing the missionaries to get more or less out of hand, until quarrels between Church and State were growing tiresome. They were accordingly executed. It served as a warning to others, and undoubtedly taught Arechuleta and Barba a lesson from which, unfortunately, they did not profit.

REFERENCES:

See Bloom's "History of New Mexico and Civics", Bancroft, etc.

(Hodge) "Notwithstanding the promises alleged to have been given by the Zuni, they seem to have remained on their mesa stronghold until 1635, when they commenced to descend and to resettle in the valley pueblos. In the following year, as we learn from another inscription on El Morro, a visit was made by the Sargento-Mayor (whom Bandelier believed probably to have been Francisco Gomez), Captain Juan de Archuleta, Lieutenant Diego Martin Barba (who was secretary to Governor Francisco Martinez Baeza in the year named) and Ensign Agustin de Ynojos. Up to this time the Zuni missions had not been re-established, and indeed Bandelier concluded that there were no missionaries from the time of Letrado's death (February 22, 1632) until after 1642."

INSCRIPTION #7:

"A 9 (?) (or 25?) dei mes de Junyo deste ano de 1709 paso por aquy para Suni Ramon Garzia Juldo." (rubric)

TRANSLATION:

"On the 9th (?) (or it may be 25th) of the month of June of this year of 1709 passed by here on the way to Zuni, Ramon Garzia Juldo."

BRIEF DATA:

This inscription is included since a photograph of it is in the Department's files. So far I have been unable to trace Ramon Garzia Juldo. Beneath his name appears his rubric. In the lower left-hand corner of the square carved about the inscription appears what resembles a cross above an altar. This design has recently been identified as the Franciscan Coat-of-Arms. Undoubtedly, therefore, Juldo was a Franciscan Missionary on his way to Zuni, and it may be that in time some mention of him in the archives may be found.

*****SWM*****

SECOND GEOLOGICAL REPORT CANYON DE CHELLY NATIONAL MONUMENT

By Charles N. Gould.

On June 14, 1937, accompanied by Chief, Naturalist Division, Trager and Associate Geologist Vandiver, I made an inspection of Canyon de Chelly National Monument, Arizona.

To my report No. 57 made as the result of an inspection on July 12, 1936, reference is made for data on topography and geology of the monument. A more formal report on this monument was made by Associate Geologist Vandiver who inspected the area in June, 1936. (See pg. 55, the Supplement, Southwestern Monuments Monthly Report, July, 1937.) A paper by Edwin D. McKee, Park Naturalist at Grand Canyon National Park, entitled "An Investigation of the Light-colored, Cross-bedded Sandstones of Canyon de Chelly, Arizona" appeared in American Journal of Science, September, 1934. This paper contains a bibliography of ten articles on the subject, chiefly by Gregory, Darton, Baker, and Reeside. A topographic map of the canyon has been published and may be obtained from the San Francisco office. A photostat of this map is attached to this report. (Original available at headquarters, Southwestern Monuments)

It is now believed by most geologists that the cliff-making sandstone in the canyon, which is known as the de Chelly sandstone, is practically equivalent in age to the Coconino sandstone of the Grand Canyon section.

At the time of our visit June 14, 1937, Custodian Faris conducted

Messrs. Trager, Vandiver and me several miles up the bed of the Canyon de Chelly and Canyon del Muerto. This is a rather venturesome trip, and should be undertaken only under guidance, and in a car equipped with extra large tires. There is no road, and the trip must be made over the treacherous quicksands of the canyon. The canyon is subject to sudden and rapid rises of water after heavy rains in the mountains near its source. At the time of my first inspection a year ago, I was not able to get into the canyon, but had to be content with a view from the Rim.

Under the guidance of Mr. Faris, we were able to see many objects of interest from the valley floor. Among others were some of the very unique cliff dwellings, including White House ruin in Canyon de Chelly which, according to our best information, was occupied from 1060 to 1275 A.D. We also saw Antelope House, in Canyon del Muerto which was named from petroglyphs on the canyon wall. There are said to be 146 major ruins in the canyon besides which there are numerous petroglyphs on the canyon walls. We also observed the peculiar cross bedding, of which studies had been made by Mr. McKee. The unusual forms of weathering which have formed arches and monuments were also studied.

Some very interesting observations were made on the Navajo Indians who have farms and orchards in the canyon. Their water supply is obtained from holes dug in the sands of the canyon floor.

We also made an investigation of the well recently drilled for a water supply near headquarters. Some question had arisen as to the source of the water in this well. The point at issue seems to be whether the water is obtained from shallow sands in the bed of Canyon de Chelly, or whether the source is in the bedrock beneath these sands.

After studying the conditions, including the log of the well, its location and the depth to rock, our opinion is that the water in this well is obtained either from the Shinarump Conglomerate or from the sub-surface flow of the wash. A report covering this matter, prepared by Associate Geologist Vandiver, follows:

"From the log of the de Chelly well, it is difficult to say as to whether it is producing from the valley fill alluvium or a coarse sandstone lense in the Chinle formation. It is probable that the red sandstone encountered at 59 feet is the top of the Shinarump conglomerate. It appears quite likely that the Chinle has been removed from the valley floor and that the Shinarump is the surface upon which the wash alluvium was deposited. In any case I think we can safely say that the water in the well is percolating water or water from the sub-surface flow of the wash. While I am not familiar with the Arizona law, I believe this will answer your question."

SECOND GEOLOGICAL REPORT ON CANYON DE CHELLY NATIONAL MONUMENT (CONT.)

DATA ON THE WELL

Began Well: January 1 , 1936.
 Finished Well: January 16 , 1936.
 Diameter of well: 8 inches.
 Depth of Well: 100 feet.
 Surface of Ground to Water: 3 feet.
 Quantity of Water on Test Run: 69,120 gallons per day.
 Kind of Casing: Screw Size: 6-5/8-inch, O.D.
 Screen, kind: McAvoy Button Length: 8 feet.
 Driller: Burt S. Cravath
 Remarks: Casing to bottom of hole and strainer between 53' and 61'.

LOG

<u>FROM</u>	<u>DEPTH</u>	<u>TO</u>	<u>FORMATION</u>	<u>REMARKS</u>
Surface	8 feet		Sand	
8 feet	46 feet		Sand and silt	Water
46 feet	50 feet		Sand and gravel	Water Hori-
50 feet	59 feet		Sand	zon.
59 feet	100 feet		Red Sandstone	

Note: Water level in the well is three feet below the surface and drops to twenty feet below the surface when water is drawn at the rate of 25 g. p. m. Pumping equipment consists of three h. p. engine driving a deep well pump furnishing 10 to 15 g. p. m. was installed by WPA in 1936. Water is pumped 1000 feet through one and one half inch line to 5000 gallon concrete reservoir south of Custodian's residence.

Data from Navajo Indian Service and Master Plan.

*****SWM*****

TUMACACORI MUSEUM

Tumacacori National Monument Museum is fashioned after the style of the Sonora Missions. As in the construction of the early churches, native materials have been employed in the characteristic manner. Walls are of sun-dried adobe brick, cornices are of burned brick and the exterior walls finished with stucco.

Many of the architectural features and details of the Sonora Missions have been incorporated in the museum building. The main entrance motif is patterned after the entrance to Cocospera. The carved entrance doors duplicate the carved doors of San Ignacio, the most beautiful doors of the entire mission chain. The other doors throughout the

museum are similar to the panelled doors of Caborca. The wood-grilled window on the east facade is typical of the grilled windows found in many of the missions.

The beamed ceiling of the Lobby, with carved corbels, is similar to the nave ceiling of Oquitoa. The wood panelled confessional at Oquitoa furnishes the detail for the lobby counter.

The piers and arches of the museum arcades follow the design of the arcade still standing at Caborca.

A groined vault ceiling has been introduced in the View Room. This type of ceiling was often used in the Sonora Missions and good examples may be found at San Xavier, Tubutama, and in the baptistry of San Ignacio.

Painted wainscots throughout the museum and the ceiling decoration in the View Room express a similar handling by native artisans of the painted decorations in the missions.

*****SWM*****

ARCHEOLOGICAL REPORT ON THE STABILIZATION OF TYUONYI IN BANDELIER NATIONAL MONUMENT

By J. W. Hendron

(Note: The original report complete with illustrations is on file and available for reference at the Southwestern Monuments Headquarters Library, Coolidge, Arizona.)

One of the largest jobs in the ruins stabilization program at Bandelier National Monument was Tyuonyi, the big community apartment house. This structure was excavated in part by Dr. Edgar L. Hewett of the School of American Archaeology during the summer seasons of 1908, 1910, 1911, and 1912. (See Organic Acts and Administrative Reports of the School of American Archaeology, Archaeological Institute of America, Santa Fe, New Mexico, U. S. A., ns., Paper No. 6, 1907-1917, p. 34, 84, 99, 119-120.)

It might be well to first describe the structure as to its architectural type, and its relation to the remaining structures in the canyon. Tyuonyi is the largest of all the ruined dwellings in Frijoles Canyon, being almost 250 feet in diameter from northeast to southwest. From the top of the north cliff it appears to be oval or egg-shaped in form. Two hundred forty-two of a possible 350 rooms have been excavated, most of the unexcavated rooms being around the outside of the structure

on the northeast, where the accumulated debris may be seen. This house was terraced, the floor levels of the rooms being different in many cases, and I have noticed that the levels of some of the rooms were elevated almost four feet above the surface of the ground around the east and southeast sides. It is not known how many stories were incorporated into the structure, but after having spent several months stabilizing the walls of the 242 excavated rooms, I do not think that the structure as a whole was over one story high; however, it is possible that second story rooms might have been built in convenient places where the walls of the higher-leveled first story rooms might have acted as a brace for the occasional second story rooms. It is also possible that there may have been an occasional third story room, perhaps built of slabs of wood, or they may have been in the form of small porches which would be very light in weight as compared to the rest of the rooms. It is a true Pueblo IV and V construction, and a date of 1460 plus or minus 15 years has been worked out from a piece of charcoal found in one of the rooms by Mr. W. S. Stallings, dendrochronologist from the Laboratory of Anthropology in Santa Fe. The house was occupied contemporaneously with the terraced community apartment houses noted by Coronado during his march up the Rio Grande Valley into the province of Tiguex, near Bernalillo, New Mexico, in 1540. The pueblos are built almost entirely of mud, the technique of construction being known as *pudoling* and, according to the Spanish reports, some of the walls were four feet thick. This expedition also pointed out that Taos or Yuraba, as it was then called, was also a multi-storied apartment house. If we use these two examples, and compare their architectural type or method of construction to that of Tyuonyi, we find that the house in question had walls no more than nine or ten inches thick, which were laid up with blocks of volcanic ash.

Depending upon the size of the building stones used in each particular room, if there were several stories they would have undoubtedly been placed in the northeast portion where the walls were much more stable than on the south and southwest sides. I have noticed that the building stones were more evenly worked for the building of the rooms in the north section, some of them being three feet in length and squared off with crude rough implements. The south and southwest portions appeared to have been haphazardly laid up, perhaps because of the fact that second story rooms would not have been needed for protective purposes as much as on the other side of the structure since the Rito de los Frijoles once flowed within fifteen or twenty feet of this section of rooms making a drop from the level of the rooms to the bed of the creek of between six and nine feet. Rooms seemed to be smaller on the south and southwest sides and the building was not as thick through, that is, there were fewer rows of rooms. This inferior type of construction might suggest that the rooms near the creek were not as important as the rooms at the other portions, and may have been constructed to complete the circle which Tyuonyi makes. Since the excavation by the School of American Archaeology, the mortar from between the

building stones has been washing away at such a rapid rate that entire walls almost five feet high were left standing without a bit of mortar between the stones, each additional course of building stone being balanced upon the ones laid under it. I have made a very careful examination of the walls, and have noticed potsherds embedded in the joints of some of the standing walls, which still retained some of the mortar, lending some substantiation to the theory that the south and southwest portions may have been constructed at some later date than the north and northeast portions. The varieties of pottery in the north and northeast sections, where construction was of a much better grade, were the black-on-whites including Santa Fe, Biscuit A, Biscuit B, and Glazes A, B, and C, while in the southeast portion Glaze E, the late Biscuit types and a few pieces of Tsankawi Black-on-Cream were found. They were also noticed in the southwest portion of the pueblo. Of course, such small percentages of broken pieces of pottery cannot be used as authoritative data to suggest that the north and northeast portions of Tyuonyi were the earliest, but it is food for thought and might be worked upon to some profitable end.

Another interesting fact discovered from the washing away of the mortar is that gaps were noticed in the walls of some of the rooms along the outside of the structure, especially in the south and southwest portions again, where rooms evidently were built or added to the main structure. This is only a suggestion, but it would be very interesting to follow up such a clue by making a detailed ground-plan drawing showing the various gaps. It might be that Tyuonyi was built in sections and not by any preconceived or definite plan.

Through the east side of the structure and just a little south was built a narrow hallway seven feet wide and almost 60 feet long, which was the entrance to the plaza. The outside was protected by a half-circle wall almost five feet thick, its ends being joined to the walls of the outside rooms. The fact that the hallway serves as the only entrance to the interior suggests that entrance to the dwellings was not gained from the outside, but that the inhabitants would be obliged to walk through the passage way to the interior and then ascend to their various dwellings. It is thought that ladders were used, although there is no definite proof, and that the villagers entered the rooms through small hatchways in the roofs. Whether or not doorways existed in the front walls of the low terraced rooms is not known, nor is it known if they were present in the higher-level rooms, but the use of the ladder is thought to have been more probable. Ladders could have been pulled up on the roofs at nightfall, and the occupants would have been quite safe in this location.

I have mentioned previously that Tyuonyi was a very late type of architectural development among Pueblo Indians, and it seems that it was also the latest type to be occupied in Frijoles Canyon. Observation of the pottery from both the cliff ruins and the valley ruins

indicates that the houses on the floor of the canyon were perhaps the last to be occupied. The pottery from Tyuonyi is similar to that taken from the fill around the large kiva not more than 200 yards east. Tsankawi Black-on-Cream ware was found in small quantities at both sites, and this suggests an occupation of the two well up into the sixteenth century.

As compared with the Tewa ruins in the detached section of Bandelier National Monument, which were occupied somewhat contemporaneously to Tyuonyi, the method of construction of the Community House in Frijoles Canyon is much poorer. This seems to hold true for most of the ruined dwellings of the Keres people.

In stabilizing the walls, it was necessary to scrape away the loose dirt to locate footings, those which were examined being made up of chunks of tuff bedded in mud mortar. Some of these rocks or building stones were relaid upon the old footings to reproduce the original character of the rooms themselves. In the stabilization work, windblown debris was transported for fifteen miles, since the soil on the floor of the canyon cannot be used by itself for mortar with any great degree of success. This was then mixed with some of the original windblown material in the rooms, and ashes and charcoal were put in the mix to duplicate the original mortar as much as possible. Bits of charcoal were seen protruding from the original mortar and this mix may have served a definite purpose. It is referred to by the Coronado expedition with regard to the villages of the Rio Grande Valley in 1540.

One reason for the disintegration of the walls was the fact that great precaution was not taken while the building stones were being laid. Vertical joints were noticed running in almost a straight line from the bottom to the top of some of the walls, and water could very easily have cut its way the entire height of the walls. In the actual stabilization, only the rocks that had fallen from the walls were replaced. They were set in mortar and then small chunks of tuff were driven between the blocks to act as wedges to hold them tight. The walls on the south and southwest sides were in a much poorer state of preservation than those on the north and northeast. It seems that construction at this point was effected in a much more haphazard manner. The north and northeast portions of the ruin retained some walls still from four to five feet high and, in some cases, the new mortar was shoved between the building stones, and the chunks of tuff were then wedged in the joints, this process being known as chinking. Occasional vestiges of doorways were found in the side walls of the rooms indicating that a family may have occupied several rooms as a dwelling. The doorways were not reconstructed. Most of the building stones consisted of chunks of tuff which had been worked or cut to suit the need, but in some cases conglomerates were noticed in some of the walls and, although their sides were smooth and rounded, they were set in the same

manner as the chunks of tuff. Conglomerates were also found serving as footings for the walls for some of the rooms. They were placed edgewise and plastered or mudded together. This method of construction appears to be as stable as the method most commonly used, and it is even used today to some extent in construction by Spanish-American people of the Rio Grande Valley. Occasional slabs of basalt were found in the walls, and also pieces of slate which were undoubtedly imported from some distant sedimentary deposit. The flat smooth slabs lying about may have been used as coverings over fire places and could be put into good use as hot plates.

The walls of Tyuonyi today are strong enough to hold the weight of a large man. It would be hard to estimate their life, but certainly they will stand up as long as they have since excavation. We do have to take into consideration however, the fact that an inch or more of plaster was put on the inside of the walls by the original inhabitants which served a two-fold purpose, the excessive amount of plaster covered the roughness of the building stones, making the walls smooth on the inside, and this excess tended to hold the wedges more firmly in place.

The court or plaza inclosed by the circular formation of the rooms at Tyuonyi is approximately 140 feet in diameter, varying slightly from this figure since the structure itself is not absolutely round. The plaza slopes from northeast to southwest, being approximately five feet lower near the southwest portion of rooms. The elevated part of the plaza contains three small kivas which were possibly the meeting places or council chambers of individual clans or family groups. It seems logical to assume such an organization in the kiva since we today find clan kivas in the pueblo of Taos, and since it is the contention of some of the old men of the present day Keres and Tewa villages that in pre-historic times each clan had its own kiva. The presence of the three might suggest that three clans occupied the big Community House. While work was being carried on at Tyuonyi by the School, one of these kivas was cleaned out and, although it was in a good state of preservation at the time of the stabilization of the Community House, it was necessary to remove the accumulated debris from around the outside so that drainage would be to the outside of the kiva rather than to the inside, and so that the only moisture entering would be the actual rain drops falling to the inside.

The structure varies from 20.8 feet to 23.4 feet in diameter, small enough so that its roofing scheme probably was not elaborate. The wall on the northeast side was approximately six feet high while on the southwest side it was only four feet high before stabilization, this difference in height probably being the result of more erosion on the southwest side than on the northeast. Three feet of additional wall was built on the southwest side as well as on the northeast causing the built up surface around the outside to slope so that drainage would be to the south and not toward the rooms of Tyuonyi, which are only six

feet from the structure on the north. The architectural type here varies somewhat from that of the large kiva which was stabilized during the months of June, July, and August of the same year. It seems that more of a flare was given to the walls of the structure under description, and that the building stones were very unevenly laid; in some cases long chunks of tuff were set in the walls so that the ends might serve as anchors in the fill around the outside. It was noticed that in some cases there appeared to be two walls, but the secondary wall was not laid in mud like the inside wall. Perhaps this difference in construction type came about because of its size, and because of the difference in diameter at the top of the wall and the bottom of the wall. The outside was built up with a fill of stones, earth, and broken pieces of pottery which may give some clue as to the length of its use. The building stones gathered from the fill around the outside were used to build up the wall, and an effort was made to lay them as nearly as possible like the building stones of the original construction. They were laid in mud mortar and were wedged or chinked with small chunks of volcanic ash and as the stones were laid up, a fill of mud, earth, and rocks was laid down behind the wall as a retainer.

The ventilator shaft was built into the southeast side of the structure and the lintel for the opening through the wall is 2.8 feet above the floor of the kiva. Two slabs of tuff laid behind the lintel formed the roof. From the entrance of the vent to the back of the shaft the distance is 4.7 feet. The shaft is 7.7 feet deep from the surface to the floor.

An unfortunate incident occurred while we were preparing to stabilize the upper portion of the shaft. Some of the loose dirt, which at one time might have been mortar, gave way, and the building stones fell to the inside. This meant a complete reconstruction of the ventilator shaft and perhaps it is not so unfortunate, since no estimate of the life of the vent in its original state could be made. The blocks of tuff were set back in cement mortar and should remain intact for many years to come. Due to the weakness of the side walls of the ventilator just inside the opening from the floor of the kiva, the blocks were stabilized with a cement mortar which is almost entirely invisible.

I see only one weakness in this bit of stabilization and that is the fact the additional three feet of main wall for the kiva was laid upon an original wall which is very unstable, and I dare not say how long it will be before it gives way. It may last months and then again it may last for years, but still the next hard rain may cause some of the original stones to give way and part of our efforts will have been in vain.

*****SWM*****

RUMINATIONS

In which we modestly admit, with the aid of some of our friends, that we are a pretty good outfit, with a few words about education of one kind and another.

We are having a fine time with a new experiment around headquarters. As I have told you in former monthly reports, we have moved a side camp of 24 CCC boys from the Chiricahua camp up to our headquarters at Casa Grande National Monument. We plan to get some utility buildings constructed during the next nine months or year for housing headquarters equipment and operations.

These boys are housed in a wooden building 140 feet long and 20 feet wide which contains the store room, kitchen, dining room, sleeping quarters, and recreation room. In addition there are two supplementary buildings, each about 20 feet square, one housing the bathing and toilet facilities and the other being a tool and ware room. We have running water in the camp, hot and cold water in the showers, wash room, and kitchen, a sewage system, electric lights, and three electric refrigerators in the store room and kitchen.

Having the physical needs pretty well cared for, we have made a start on the mental needs. In this we rather surprised ourselves with the amount of knowledge we could, or thought we could give the boys. When the list was finally made up, we found we had 72 signatures for classes out of the 24 possible pupils. We found we were going to try to teach classes in Arithmetic, Drawing, Construction, Surveying, Barbering, Typing, Bookkeeping, English, Archaeology, Cooking, Auto Mechanics, Penmanship, Stenography, Museum Technique, and Photography.

As one might expect, the teachers are the ones who are learning most. Personally, I am trying to introduce some of the boys to mechanical drawing and I am learning fast. The short time we have to work, only one hour per week, the possibility of the boy quitting at the end of the period, the mixture in the class of college entrance ability with third or fourth grade ability, rules out the average course of training. The problem here is different. These boys must be able to carry away from every class something new and useful. There is no hope of holding their interest by the usual classroom methods, and the fact that they can quit any time they want to tends to keep the teacher on his toes, mentally speaking. We have started out with the very practical problem of drawing a map of the Organ Pipe Cactus National Monument. There is no accurate map of that 500 square miles and we will have to compile one from the various sources. The result should be of actual value to our Service and, in obtaining it, the boys are getting a lot of information about meridians, parallels of latitude, guide and correction meridians and parallels, errors of surveys, topography, etc. We are also studying the blue prints of the construction we have under way in the utility area and the boys are becoming quite proficient in reading blue prints. The theory is that they must carry away some new information

from each meeting, but I don't know whether or not the instructor is going to be able to make good on that theory.

*****SWM*****

And now comes Dr. L. F. Brady, paleontologist and geologist, with some of the boys from his excellent school, and pays us a visit. He says he didn't have the three cents needed to send us a letter and had worn out the December number of our report with that franked card which he ought to have used, but, still having a little credit at the service station, he got enough gas to drive over here and tell us not to take him off the mailing list of the monthly report. We promised and everything is lovely again.

*****SWM*****

All of which reminds us to report that we haven't had very much success at cutting down that mailing list. We started out with about 260 names and have wound up with about 245 still on the list and about 25 still in limbo, some of whom will certainly protest being scratched off. In other words, while we have been slapping at the list it has grown a little bit and we are not much better off than when we started. We have not received an answer authorizing us to take a single name off the list. We have not heard from some of them but that this cannot always be taken as negative evidence is shown by a letter in yesterday's mail from Arthur Fife, who makes the wheels go round in the Soil Conservation Service, and who writes a personal letter to say he somehow missed the card in the December number and just caught the warning in the January issue, and for goodness sake not to throw him out.

*****SWM*****

And here is Mrs. Mott, who says: "I have just finished going over the January Report, and I found the final notice threat. So, for fear Mr. Mott neglected to send you the card from the December issue, I am hastening to ask that we be left on the mailing list. There would be a great and aching void if the Report did not come to us each month. Frequently Mr. Mott finds material in it for news stories and certainly I always find something that I didn't know before. The Supplement is, of course, of peculiar interest to me."

Harvey had not forgotten, Mrs. Mott, so you and he and the Phoenix Republic will continue to get that copy of the Report.

*****SWM*****

The President of the Colorado Museum of Natural History says: "Surely we want you to continue sending the Report. I read practically every word and am always much interested."

*****SWM*****

RUMINATIONS (CONT.)

Frank Roberts, Jr., of the Bureau of Ethnology, says he can't find any card in his December issue, probably because Marvin's tired hand slipped in the gathering of that particular copy, Frank, and not, as you suggest, because you can't read any more or are losing your grip, and goes on: "Anyway, I'd like to continue to receive the Report as it is such a good way to keep posted on what is going on in the Southwest.*** While I am only an interested outsider in the various family matters that make up a good share of the report, I do get valuable items of general information from its pages."

Chief, we just can't help feeling proud of these boys of ours who build this Report month by month when outstanding men in the archeological and anthropological field like Kidder and Setzler and Judd and Roberts and Fay-Cooper Cole and several others we could name write us the kind things they have written us about their interest in it. Surely we can justify the use of the time and paper we use to keep such folks in touch with our work.

I am going to pass the word to the boys on the job, Chief, that it is strictly up to them to keep this interest alive by the quality of report they build for experts like these in the various fields of science in which we work. Our own particular field of handling visitors is big enough to keep us mighty busy, but we must realize that any expenditure of time and energy we may make in bringing out problems and evidence on problems in the fields of archeology, ethnology, geology, or any phase of natural history will not be wasted; the best minds in America are glancing through our report month by month looking for the latest information we can furnish them.

Not long ago we had a man quit our Service to accept a position with a university. I am quite sincere when I say I hate to have our boys step down from a ranger job to these small university jobs; leaving a chance to give information and education to ten thousand eager and appreciative adult visitors per year in order to try to hammer a few simple fundamentals into the heads of a couple of hundred youngsters.

*****SWM*****

But Ira is calling for copy and Marvin has the mimeograph rolling so I will have to dismount from my hobby which comes up in that last paragraph all saddled and bridled and ready to be ridden. Take it away, boys, and it looks like you have put out another good report.

Cordially,

The Boss

SOUTHWESTERN MONUMENTS

MONTHLY REPORT



M A R C H - - - 1 9 3 8

DEPARTMENT	OF	THE	INTERIOR
NATIONAL	PARK	SERVICE	

SOUTHWESTERN MONUMENTS
MARCH, 1938, REPORT
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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, superintendent; Hugh M. Miller, assistant superintendent; Burke W. Soule, chief clerk; E. H. Tovrea, assistant engineer; W. F. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Natt M. Dodge, junior park naturalist; Millard C. Gorman and Luis A. Castellum, clerk-stenographers; Ira G. Goodwin, chief clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

<u>FIELD STATIONS</u>	<u>VISITORS, 1937</u>	<u>ACRES</u>
1. <u>Arches</u> , 1,000, Moab, Utah, Harry Reed, custodian- - -		4,520.00
2. <u>Aztec Ruins</u> , 14,300, Aztec, N. M., T. C. Miller, cust.- - -		25.88
3. <u>Canceller</u> , 14,530, Santa Fe, N. M., C. G. Harkins, - - -		26,036.20
custodian; George H. Sholly, grader operator.		
4. <u>Canyon de Chelly</u> , 1,422, Chin Lee, Ariz., John Will Faris.		83,840.00
custodian.		
5. <u>Capulin Mountain</u> , 26,100, Capulin, N. M., H. Varr, cu.- - -		620.37
6. <u>Casa Grande</u> , 25,661, Coolidge, Ariz., A. T. Picknell, - - -		472.50
custodian; David J. Jones, park ranger; Jennie Rodgers, Strenle Coyle, Wayne Hypes, and Teddy Savage, CCC guides and helpers.		
7. <u>Chaco Canyon</u> , 8,014, Chaco Canyon, N. M., L. T. McKinney, cu. -		21,512.37
8. <u>Chiricahua</u> , 9,228, Douglas, Ariz., Frank T. Fish, cust.- - -		4,480.00
Harold Lee Minton and CCC Guides Homer Bennett and William Stone.		
9. <u>El Morro</u> , 2,336, Ramah, N. M., R. R. Budlong, cust.- - -		240.00
10. <u>Gila Cliff Dwellings</u> , 250, Cliff, N. M., no custodian - - -		160.00
11. <u>Gran Quivira</u> , 2,414, Gran Quivira, N. M., G. F. Bountey, cu.		610.94
12. <u>Hovenweep</u> , 500, in charge of T. C. Miller, Aztec, N. M. - - -		285.80
13. <u>Montezuma Castle</u> , 9,013, Camp Verde, Ariz., Earl Jackson,		520.00
custodian; Jesse P. Jennings, park ranger.		
14. <u>Natural Bridges</u> , 740, Blanding, Utah, Zeke Johnson, cu. -		2,740.00
15. <u>Navajo</u> , 329, Kayenta, Arizona, John Wetherill, custodian;		360.00
William F. V. Leicht, park ranger.		
16. <u>Organ Pipe Cactus</u> , 5,000, Ajo, Ariz., no custodian- - -		330,670.00
17. <u>Pipe Spring</u> , 1,042, Moccasin, Ariz., Leonard Heaton, cu.-		40.00
18. <u>Rainbow Bridge</u> , 300, Tonalea, Ariz., no custodian - - -		160.00
19. <u>Saguaro</u> , 20,000, Tucson, Arizona, No custodian- - - - -		63,284.00
20. <u>Sunset Crater</u> , 10,000, Flagstaff, Ariz., P. Beaubien, in		3,040.00
charge.		
21. <u>Tonto</u> , 5368, Roosevelt, Ariz., T. Onstott, in charge- - -		1,120.00
22. <u>Tumacacori</u> , 18,472, Box 2225, Tucson, Ariz., L. Caywood, cu.-		10.00
23. <u>Walnut Canyon</u> , 10,772, Flagstaff, Ariz., P. Beaubien, rang.		960.00
24. <u>White Sands</u> , 91, 532, Alamogordo, N. Mex., Tom Charles,		142,987.00
cust.; J. B. Felton, park ranger, Joe Shepperd, grader operator.		
25. <u>Wupatki</u> , 2,080, Flagstaff, Ariz., P. Beaubien, in charge- - -		35,865.00
26. <u>Yucca House</u> , 400, Cortez, Colo., T. C. Miller, Aztec, N. M.- - -		9.60
Total--291,426 visitors 1937, 1,132 sq. mi.; acres - - -		724,619.96

OPENING

By Superintendent Frank Pinkley,
Southwestern Monuments,
Coolidge, Arizona.

Dear Mr. Director:

We have had a mild, open winter in our district with so little moisture as to start range men worrying about spring and summer feed. The Salt River Valley has plenty of water stored in its various reservoirs, but the Gila Valley has hardly enough stored water to get through the summer season unless there are exceptional rains between now and mid-November. The season seems to be the driest in the valley earlier than last year.

Visitors have decreased in numbers, but the district as a whole and the tourist business is only fair, however, no profits and no money being spent.

We have made few personnel changes in March. Marvin Hale, CCC guide at Casa Grande, went home and was replaced by Wayne Epps. One guide at Chiricahua was replaced. William Leitch, permanent ranger chosen from the Civil Service list, replaced Milton J. Gerrell, temporary ranger, in charge of Navajo National Monument. Thus, for the first time, the three scattered sections of the Navajo National Monument are under the charge of a man-around man. This does not mean complete protection, of course, for, wherever the ranger may be, there will always be two sections of his monument, eight or more miles distant, open to vandalism by persons who can enter by trails over which he has no control. There is, however, a certain mental hazard, from the vandal's standpoint, in our having a man on duty all the time. This will tend to reduce our troubles very much although it will not eliminate them. April bids fair to be a month of personnel changes as we are filling vacancies and putting on one or two temporaries.

It was with a sigh of relief that we received part of our impounded funds and changed our plans so that visitors could be adequately served this season, worn out equipment replaced, and our organization kept tuned up to its usual efficient condition. We had suffered some and it looked like bad times ahead.

We reported to you on Saguaro land-title problems during the month and it now looks as if our hopes on straightening that situation may be realized.

The Chiricahua extension is now up to the Washington Office for further handling and the outlook is more than good.

Title to the bridge site in Chaco has been approved and before long we may be able to work on the bridge.

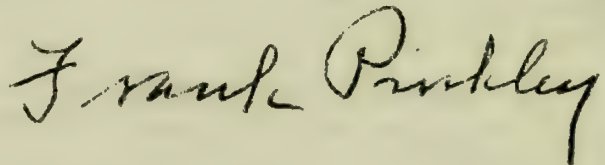
OPENING (CONT.)

We are having some trouble getting started administratively at Organ Pipe Cactus National Monument, due to the fact that the 500 square miles was dumped in our lap without a dollar for its administration for this or the next fiscal year, but we will manage to handle its problems after a fashion.

A truck load of museum exhibits came in from the Berkeley Laboratories during the month for the museum at the Tumacacori administration building. Another truck load will probably be ready by the middle of April, following which the Laboratory hopes to send some one down to make the installation. The impoundment of the remainder of the WPA funds, under which these exhibits were being built, will seriously injure the appearance of the museum as a whole because it will lack just that much of being complete. We contracted our building, designed to house a certain number of cases in its museum rooms, which were to tell certain sections of the history of the mission that could not be told over in the ruins. When the impoundment orders came, our building went on to completion because it was under contract, but the work of the laboratory at Berkeley, which was running on force account, was cut off leaving us with a mighty nice museum and administration building but with only about half the museum exhibits. Since the museum was designed as a unit to be read from one end to the other, we are going to have difficulty adjusting the scattered exhibits so they will not give the visitor the feeling of reading every other page of a book and guessing at the meaning of the whole story.

The very interesting experiment of the Mobile Unit Ruins Stabilization, which is being carried on at Chaco Canyon (a cooperative experiment between the Indian Service and Park Service) is achieving marked success. It is providing work, through a small CCC project, for about 20 Indians and is doing some very valuable protection work for some of the finest prehistoric ruins in the United States. We hope this cooperative enterprise can be carried on through the next fiscal year.

Cordially,

A handwritten signature in cursive script that reads "Frank Pinkley". The signature is written in dark ink and is positioned above the typed name and title.

Frank Pinkley,
Superintendent.

CONDENSED REPORT

IN WHICH ARE GIVEN HIGHLIGHTS OF THE MONTH



Cochilidge, Arizona,
April 1, 1938.

The Director,
National Park Service
Washington, D. C.

Dear Sir:

The condensed report for the month of March, 1938, follows:

TRAVEL	March 1938	March 1937	March 1936	March 1935	Travel Yr. To Date
Archaeo	180	0	0	218	446
Aztec Ruins	936	531	102	3,005	4,681
Bandelier	400	320	10	2,197	3,037
Canyon de Chelly	27	-	15	257	234
Capulin Mountain	000	800	000	3,000	3,600
Casa Grande	3,295	3,912	100	17,070	20,365
Chaco Canyon	391	309	100	933	1,377
Chiricahua	547	488	100	2,694	3,241
El Morro	34	--	16	390	624
Gila Cliff Dwelling	0*	--	--	25	25
Gran Quivira	224	156	102	848	1,072
Hovenweep	0*	--	--	--	0
Montezuma Castle	380	655	030	2,907	3,287
Natural Bridges	0*	--	--	147	147
Navajo	2	--	--	81	83
Organ Pipe Cactus	700*	--	--	3,500	4,200
Pipe Spring	91	11	119	640	731
Rainbow Bridge	0*	--	--	66	66
Saguaro	3,000*	1,545	2,000	11,600	14,600
Sunset Crater	151	--	--	1,633	1,784
Tonto	612	900	816	2,223	2,835
Tumacacori	1,407	2,188	1,573	6,288	7,695
Walnut Canyon	196	34	360	2,013	2,209
White Sands	2,962	7,386	4,685	25,435	28,397
Wupatki	64	90	104	352	416
Yucca House	0*	--	--	70	70
TOTALS	16,159	19,345	15,515	89,173	105,332

*Estimated

A considerable drop in travel is recorded for the month, which shows that 4,065 fewer people visited the Southwestern Monuments than in

CONDENSED REPORT (CONT.)

February, 1938, and 3,186 fewer than in March, 1937. Careful analysis of the figures shows, however, that over half of this loss occurred at White Sands where a strong effort is being made to obtain an accurate visitor count and where wind storms during March adversely affected travel (see p. 199). An interesting fact divulged by the travel figures is that the southern Arizona monuments have fallen off in travel indicating, possibly, that the winter resorts of this area are being less heavily patronized, due, perhaps, to the "recession". Travel is discussed in detail under the heading "Visitor Statistics and Educational Contacts", on page 250.

000 GENERAL

010 Matters of Unusual Interest or Importance.

Arches: A great increase in interest in the area is being shown, and a publicity folder is to be issued by the Moab, Utah, Lions Club (see p. 203).

Bandelier: Consideration is being given to changing the name of the "Detached Section" of the monument to "Otowi Section" (see p. 197).

Chaco Canyon: Threatening Rock shows continued movement (see p. 208).

El Morro: Disintegration of the soft stone of El Morro will soon result in the loss of many inscriptions (see p. 213).

Montezuma Castle: Need is felt for larger campgrounds (see p. 233).

Tumacacori: Lowering of the water table is threatening the life of monument trees (see p. 202).

Walnut Canyon: A site has been selected for the proposed CCC Camp (see p. 235).

White Sands: Closer checking of travel due to the presence of a resident ranger indicates definitely that White Sands is a week-end monument (see p. 198).

020 General Weather Conditions

"Windy" is the term which best fits weather conditions reported from the various Southwestern Monuments during March. Montezuma Castle suffered heavy floods (see p. 228-9) while Walnut Canyon, Natural Bridges, Canyon de Chelly, El Morro, Tonto, and Tumacacori report considerable precipitation with resulting muddy roads. Stormy or variable weather apparently predominated throughout the Southwest.

100 ADMINISTRATIVE

120 Park Inspections by

123 National Park Service Personnel

Bandelier: C. N. Gould, H. Miller, L. Gastellum, and W. Yeager.

Casa Grande: C. Steen, T. Onstott, L. Heaton, and Emil Emst.

Montezuma Castle: J. Tovrea.

Tumacacori: Wm. Leicht, T. Onstott, A. Bicknell, G. Stonehocker, Dale King, L. Gastellum, Herb. Maier, John Haile, K. Wallace, H. Nelson, Leonard Heaton, and N. Dodge.

Walnut Canyon: Herb. Maier, John Haile, and A. Keuhl.

CONDENSED REPORT (CONT.)

White Sands: H. Miller, J. Diehl, Lackey, C. Richey, Cronyn, L. McInney, and Clark Wells.

125 Other Government Officers

Inspector: Fred Wilson, U.S.F.S.

Bandelier: M. L. Wilson, U.S.D.A.

150 New Equipment

El Morro: The new official weather observation station was received and went into use the first of March (see p. 211).

180 Circulars, Placards, and Publicity

Bandelier: A photograph taken in the monument appeared in a recent issue of the "Educator", a magazine for teachers.

Aztec Ruins: The "Denver Post" published a photograph of the ruins. The Associated Press has given wide publicity to the forthcoming Easter Sunrise Services at the monument (see p. 219).

El Morro: Built from the very complete data furnished by the custodian, a radio script for a half-hour broadcast featuring an early-day episode connected with Inscription Rock has been prepared by the Washington Office (see p. 214).

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

210 Maintenance, Unusual

Aztec Ruins: Because of larger groups of visitors, it has been found necessary to brace the floor of the museum (see p. 218).

Bandelier: Bids have been let to repair burned garage (p. 194).

Chaco Canyon: Considerable work has been done on the custodian's residence (see p. 207).

Montezuma Castle: The water system has been overhauled and considerable flood damage repaired (see p. 230).

White Sands: March winds have kept the highway covered with sand requiring the full time of one man removing it (see p. 199).

220 Improvements

Chiricahua: Some much needed work is being done on the approach road from Douglas (see p. 215).

White Sands: Adobe Walls have been fenced to exclude livestock (see p. 199).

230 New Construction

231 CCC Construction

Casa Grande: Excavations for the storeroom have been made and the foundation poured. Clean-up has been completed around Compound B. Adobes for the warehouse have been made. The shop building is ready for the floor (see p. 224-5).

Chiricahua: Maintenance of two and one half miles of the Sara Deming Trail has been completed, and backsloping, drainage, re-surfacing, and clean-up of this section finished. Extension of the Utility Area Project is 50 per cent complete. Employees' Residence is 95 per cent complete. The masonry wall around the utility area is 50 per cent complete. Borrow pit elimination has been carried on. Five hundred square yards of rock have been removed in backsloping. Slides have been removed and ditches and culverts cleaned. One fourth mile of highway has been re-

surfaced (see p. 216-17).

Bandelier: The Stone Wall Project is continuing. Rock Quarry work has been carried on all month. Two pieces of furniture have been finished. The Lobby and Sales Room Project status is as follows: wall construction to roof height, masonry work on the fireplaces completed, aspen ceilings installed, roof decking nearly complete, flagstone flooring nearly all laid. In the Employees' Dormitory, wall construction and roof are completed, and the water and sewer line installations have been made (see p. 197-8).

232 R. D. Construction

White Sands: Aside from interior plastering, most of the buildings are finished. Plastering has been held up on Residence No. Two because of lack of plaster. The electrical plant has been installed and water under pressure is now available (see p. 200).

300 ACTIVITIES OF OTHER AGENCIES

310 Public Service Contractors

Chiricahua: Horseback trips have proved successful. A new filling station is being installed (see p. 216).

320 Cooperating Government Agencies

Tonto: Valuable assistance has been rendered by the State Highway representative in blading the road (see p. 210).

350 Donations and Accessions

Tumacacori: Eight lantern slides, a number of black fig cuttings, two books, one periodical, and one pamphlet have been received (see p. 202).

Montezuma Castle: An interesting stone, believed to be an artifact, has been donated by J. P. Place of Cottonwood, Arizona (see p. 229-30).

400 FLORA, FAUNA, AND NATURAL PHENOMENA

410 Ranger, Naturalist, and Guide Service

Chiricahua: Enrollee James Minton replaced Savoy (see p. 216).

Headquarters: Marvin Hale was replaced by Buster Baldwin who, in turn, was replaced by Wayne Eppes.

Natural Bridges: The custodian has been carrying on a lecture program in Salt Lake City with an imposing number of contacts to his credit (see p. 226-7)

Navajo: Milton Wetherill was replaced by Wm. Leicht (see p. 204).

Tumacacori: Custodian Caywood returned to duty, following sick leave, on March 19 (see p. 201).

420 Museum Service

El Morro: The custodian has been using his residence as a museum and lecture hall, but its small size makes it inadequate for this purpose (see p. 213).

Montezuma Castle: A scale model of a restored cliff room has been completed and installed in the museum (see p. 230).

460 Birds

Bandelier: Bird banding operations list 69 birds (see p. 194).

Casa Grande: Robins have been seen. The famous Casa Grande owls

CONDENSED REPORT (CONT.)

are raising a family (see p. 224).

Capulin Mountain: Robins stayed all winter (see p. 222).

El Morro: A pair of Golden Eagles are nesting (see p. 212).

Guan Quivira: Winter birds are still present (see p. 220).

Montezuma Castle: Betty Jackson's report is on page 203.

Navajo: Spring migrants are arriving. Eighty-four birds have been handled in banding operations (see p. 24-5).

470 Animals

Bandelier: Mountain lions are discussed on page 195.

Capulin: Deer, squirrels, and porcupines are numerous (see p. 222).

Chaco Canyon: Prairie dogs are out for the summer (see p. 207).

Chiricahua: Deer are often seen. The first rattlesnake of the season was encountered March 1 (see p. 210).

Montezuma Castle: Several raccoons are listed among the animals observed this month (see p. 230-31).

Navajo: A rock squirrel with young was captured (see p. 205).

480 Miscellaneous

Montezuma Castle: Floods isolated the monument as a 12-foot rise in Beaver Creek took place (see p. 228-9).

Tonto: Spring flowers will not be as abundant as anticipated.

Considerable difference in precipitation has been noted between the monument and the nearest official weather station. (See p. 209).

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

530 Newsworthy Visitors

Artes Ruins: A District Home Economics group convention with 279 delegates visited the monument (see p. 216).

Casa Grande: J. B. Priestly and Dr. T. D. A. Cockerell.

540 Public Camps

Bandelier: Increased use is being made of the campground.

Casa Grande: Picnic grounds are popular (see p. 223).

Montezuma Castle: The campground is getting a lot of use. More space is badly needed (see p. 233).

600 PROTECTION

610 Police

Bandelier: Weekly patrol of the Detached Section is being made.

630 Accidents

Chaco Canyon: While on annual leave, the custodian was able to assist in clearing up an accident near White Sands (p. 207).

640 Destruction of Predatory Animals

Chaco Canyon: Five cats and one dog have been removed (see p. 209).

Chiricahua: Three house cats have been eliminated (see p. 215).

El Morro: One house cat has been killed (see p. 212).

650 Signs

Chaco Canyon: A guided trip schedules sign has been made and installed (see p. 208).

(CONDENSED REPORT (CONT.))

Gran Quivira: Guide signs to the monument have been placed by outside agencies (see p. 220).

Chiricahua, Walnut Canyon, Montezuma Castle have installed signs informing visitors to keep cats and dogs on leash or in cars.

700 ARCHEOLOGY, PRE-HISTORY, AND HISTORY

Navajo: Remains of a dinosaur have been examined (see p. 204).

Gran Quivira: An interesting ruin was found by the custodian.

Water storage "tanks" were noted in connection with ruins (see p. 220).

Casa Grande: Studies of the "sun hole" and of prehistoric canals have been made during the month (see p. 223).

900 MISCELLANEOUS

Information regarding Sunset Crater and Wupatki will be found in the Walnut Canyon report, page 235.

"Doc." Gore, well known to personnel throughout the Southwestern Monuments, underwent a major operation in Phoenix April 2. He is reported as doing as well as could be expected".

MAIL COUNT

Incoming:		
Official	1,519	2,762
Personal	<u>1,243</u>	
Total incoming		2,762
Outgoing:		
Official only	<u>2,727</u>	
Total outgoing		<u>2,727</u>
TOTAL POSTAL MAIL		5,489
Telegrams:		
Incoming	28	
Outgoing	<u>22</u>	
Total telegrams		<u>50</u>
GRAND TOTAL PIECES OF MAIL HANDLED		5,539

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

BANDELIER

By C. G. Harkins, custodian,
Santa Fe, New Mexico.

Visitors this month, 400; total since October 1, 3,097.

Total travel for the month was 400 people in 121 cars, an increase of 80 visitors over March of last year. There were 28 states and five foreign countries represented. The six states leading in number of visitors were as follows: New Mexico, 237; New York, 26; Kansas, 23; Pennsylvania, 15; Colorado, 13; New Jersey, 11.

Foreign countries represented were France, England, Australia, Canada, and Scotland.

TRAVEL STATISTICS

Total travel-	- - - - -	400 persons
Museum trips-	- - - - -	29
Total guide time special-	- - - - -	14,025 minutes
Total guide time in the field	- - - - -	2,495 minutes
Average time field trip	- - - - -	75.6 minutes
Total guide minutes	- - - - -	2,995 minutes
Total contacts-	- - - - -	400
Total guide time in museum-	- - - - -	500 minutes
Special groups-	- - - - -	3
Average time museum contact	- - - - -	17.2 minutes
Total Visitor time-	- - - - -	17,025 minutes

Weather has been typical of spring. The first part of March consisted of wind, rain, and snow; and the latter part was mostly wind. A table of weather conditions follows:

Days Clear-	- - - - -	11	Days Cloudy-	- - - - -	12
Days Partly Cloudy-	- - - - -	5	Maximum Temperature-	- - - - -	71°
Minimum Temperature	- - - - -	16°	Mean Maximum	- - - - -	58.46°
Mean Minimum-	- - - - -	27.17°	Range-	- - - - -	28.57°
Mean-	- - - - -	42.86°	Precipitation-	- - - - -	.82"

Weekly inspections of the Detached Section have been made. The road through that section is in good condition. No molestation of the ruins has been noted. A good many visitors have been up to the caves along the highway. No sign of pot-hunters has been noted.

A picture of a scene in Bandelier was carried in the March issue of the "Instructor", a magazine published primarily for school-teachers,

and printed in New York.

Bids were let for the material to repair the garage damaged by fire in January. The roads have been in good condition all month. The gravel on the entrance road has been worked over and the parking area regraded. At last we are getting the gravel to pack and, if we get sufficient moisture, the entrance road will be in good condition for at least the next month.

Guide service has been provided for all persons desiring it. A great many visitors the past month have been here before. These parties prefer to visit the caves by themselves. As a rule they go to the Ceremonial Cave.

Travel showed an increase over March of last year.

Weather and roads have been ideal for travel.

NEWSWORTHY VISITORS

Mrs. Alice Abbott Gresdale, a former resident of Frijoles Canyon, visited the monument. Judge Abbott built the present Frijoles Lodge, now operated by Mrs. Evelyn Cecil Frey.

Mr. M. L. Wilson, Under-Secretary of the Department of Agriculture, Washington, D. C.; Mr. J. D. La Corn, Washington, D. C.; Mr. E. C. Korn, Albuquerque; and Dr. Reginald Fisher, Santa Fe.

PARK SERVICE VISITORS

Dr. Charles N. Gould, regional geologist, Santa Fe; Mr. and Mrs. Hugh M. Miller, assistant superintendent, Southwestern Monuments, Coolidge, Arizona; Luis Gastellum, clerk, Southwestern Monuments; and Mr. W. Ward Yeager, assistant forester, Regional Office, Santa Fe, New Mexico.

The last two Sundays have brought a number of campers to the Camp-ground for picnic lunches.

BIRD BANDING

Bird banding was continued during the month. Three returns were trapped, they being originally banded by Betty Jackson in 1935.

A total of 69 birds were handled. Among this group were three returns, 34 repeats, and 32 new birds. One Long-crested Jay, and one Pine Siskin were banded; the balance being juncos. Two large flocks of geese were noted passing over the monument.

MOUNTAIN LION

The area comprising Bandelier National Monument lies between the Rio Grande River and the Jemez Mountains and is mainly timber land covered with pinyon, juniper, Douglas Fir, and Ponderosa Pine. The northernmost of the three major canyons is being developed, leaving the remainder a virtual wilderness where wild turkey and deer abound. This makes an ideal game country, and where there are deer and turkey, predatory animals such as the coyote, bobcat, and cougar are found in more or less abundance. Very little evidence of cougars ranging the monument has actually been found, although the tracks of a large cat were noted in the dust of the trail at the upper crossing of the Rito de los Frijoles, (The Little River of the Bean) last summer; an animal that perhaps had strayed down from the higher mountains in search of food.

The Mountain Lion, or Cougar as it is commonly called in the West, is the largest of the cat tribe native to America. In various parts of its range, it is also known as the Panther or Puma. It is a slender-bodied animal with a small head and long round tail, having a total length varying from seven to nine feet and, in extreme instances, weighing from 150 to 300 pounds. The Cougar has from two to five young at a litter, the kittens being paler brown than the adult and plainly marked with large dusky spots on the body and dark bars on the tail. These special markings of the young, as in some other animals, are thought to be ancestral, and appear to indicate that in the remote past our plain brown panther was a spotted cat, somewhat like the leopard.

No other predatory animal has a range equal to that of the cougar. It originally inhabited both the North and South American Continents, from southern Quebec and Vancouver Island to Patagonia, and from the Atlantic to the Pacific Coasts. Within this enormous territory, it appears to be equally at home in an extraordinary variety of conditions. It still lives in the high Rocky Mountains of the West, where it endures the rigors of the winter temperatures. The distribution of the Cougar is quite general, throughout the range of large game, from the treeless areas of the most arid parts of the southwestern deserts, to the humid tropical areas of Central and South America, whose gloomy depths are drenched by very heavy rainfall. Geographically, the species varies according to its localities. These vagaries are characterized by differences in size, by paler and greyer shades in the arid regions, and by darker and more reddish or richer brown ones in the humid areas.

The Cougar, while powerful enough to be dangerous to man, is extremely timid. Owing to its being a potentially dangerous animal, the popular conception of it is that of a fearsome beast whose savage exploits are celebrated in the tales of the frontier. As a matter of fact, few wild animals are less dangerous, although there are authentic accounts of wanton attacks upon people, just as there are instances of bull elk and moose becoming aggressive.

Cougars are nocturnal in habit, but in regions where they are not hunted they are frequently abroad by day. They are tireless in their wandering, often traveling many miles in a single night, sometimes in search of game and sometimes in search of a new hunting ground.

Although inoffensive to people, this cat is such a fierce and relentless enemy of large game and livestock that it is everywhere considered an outlaw. Large bounties have been placed on its head, resulting in nearextermination in many parts of the eastern United States, and in greatly diminishing its numbers elsewhere. It is not only hunted with gun and dog but with trap and poison. The latter method has not proven successful. After making a kill and satisfying its hunger, the cougar will usually seek a place safe from detection and take a nap. Upon awakening, in some instances, it has been known to return and feed again; otherwise the next meal will be from a fresh kill. If deer are very plentiful, a cougar may kill, it is believed, as many as two a week. It secures its prey by a silent cautious stalk, taking advantage of every cover until within striking distance, and then, with one or more powerful leaps, dash the victim to the ground.

An instance is reported of a cougar observed lying in wait along a game trail in the Sierra Nevadas of California. When its victim approached within striking distance, the cat gave a great leap, landed on the deer's back, and carried it to the ground with such violence that it slid ten or twelve feet across a slope. Apparently the deer had been killed almost instantly. A cougar trail followed by a hunter through the snow in the high mountains of New Mexico led to the top of a projecting ledge from which the lion had evidently leaped out and down more than 20 feet, landing on the back of a deer and sliding with it 50 feet or more down the snowy slope.

Mountain lions also prey on calves but their fondness for young horses about a year old is reported to be so great that, in many range districts of the western states and on the tableland of Mexico, it is impossible to raise horses owing to the depredations of this animal.

A study of the cougar as a predator is interesting. In the carnivorous predators there is frequent suggestion of a density limit, doubtless varying with locality and possibly to be interpreted in terms of territorial concept, except that it holds yearlong. For instance, authorities in California claim that each cougar covers about three townships. This perhaps reflects a density limit in large carnivore.

Most predators, even the non-migratory species, are more mobile than their prey. However, the cougar tops them all, having actually been tracked over hunting routes 100 miles in length on ranges 50 miles in diameter. Local and temporary exterminations occur on every game range and, where there is no surrounding population to restock by influx, the exterminations are permanent. Low mobility decreases the

BANDELIER (CONT.)

possibility of restocking; high mobility increases it. Cougar have almost annually been exterminated from many western regions but as long as there are any left in neighboring regions, the blanks promptly restock.

In California, game officials estimate that the typical deer range contains one cougar per township. Assuming that there could be ten deer per square mile, the ratio would be 330 deer to each lion.

Cougar also adapt unusual conditions to their use in securing prey. Water holes are ideal places for cougar to "sit and wait" for their game. Old-timers report that certain "lookout points" in the Catalina Mountains of Arizona were formerly littered with bones of numerous sheep which had been ambushed by mountain lions. If this country had been better watered, the cougar could not have operated so successfully. A similar instance was noted on the Salado Desert in the case of the antelope. Where there were wells only cougar tracks literally covered the ground but no tracks of antelope were noted as they subsisted on cactus and other succulents.

*****SWM*****

Glad to note that business has picked up a little at Bandelier over last month.

Hugh Miller comes in with a glowing report on the general conditions at Bandelier and especially on the construction work Hub Chase and his CCC camp are making done.

Complaint has been made during the month by a friend of the Service against the use of the name "Detached Section" for that portion of the monument lying between headquarters and the town of Santa Fe. The complaint is well founded; that name simply grew up in office use and has gradually spread outside. We are considering calling that portion of the monument the Otowi Section, but will confer with the local people who know much more about it before making a decision.--F. P.

*****SWM*****

BANDELIER CCC

By H. B. Chase, project superintendent, Santa Fe, N. Mex.

During this month all wall construction of the Lobby and Sales Room (Unit No. Two of the Hotel Development) has been completed to roof height, masonry work on the three fire places has been completed, aspen ceilings have been installed, and a major part of the roof decking has been completed. Also, in connection with this project, a major part of the flagstone flooring has been laid in the patio.

All wall construction of the Employee's Dormitory (Hotel Development) has been completed this month, the roof has been completed in all details, water and sewer line installations have been made and, at the

present time, the flagstone flooring is in the process of being laid.

During the later part of the month a small crew has been at work pouring footings and laying wall on the Stone Wall Project for stone walls connecting the various buildings of the Hotel Development.

The carpenter crew finished two pieces of furniture this month. During the month this crew has spent the major part of their time installing lintels, corbels, and roof of Unit No. Two of the Hotel Development.

A large crew has been at work all month in the Rock Quarry, hewing and shaping building stones for use in the Hotel Development.

*****SWM*****

WHITE SANDS

By James Felton, park ranger,
Alamogordo, New Mexico.

Visitors this month, 2,362; total since October 1, 28,397.

TRAVEL

Only 949 people registered this month. However, each Sunday of the travel period has brought us more than 250 visitors with the exception of February 26 when only 116 people were counted. These visitors make up more than half the number actually checked into the monument. The chief reason for our drop in visitors may be credited to the weather. My total count of people contacted is 1,481 in 411 automobiles. These visitors are asked to register, hence the high registration total in comparison with the number checked.

The ranger is missing a few night parties and those stopping along Highway 70. These are as yet unaccounted for but, by estimating their number, we may say that the White Sands were visited by 2,962 people this month. At present this is chiefly a week-end monument, Boss, and no matter how we add, subtract, or multiply, the week-day travel will not hold up the count to previous estimates.

ROADS

The unpaved section of Highway 70 to the west toward Las Cruces is rough and corrugated. Construction on ten miles of this section has been pushed by the contractor. All bridge structures are in place and grading of the roadway started. Lewis McKinney reports the road across the mountains via Cloudcroft as good.

We are having trouble maintaining the monument highway within the Sands. Where the road goes through the dunes, winds have carried away

WHITE SANDS (CONT.)

much of the clay plating. In removing sand from the roadway, the fresno picks up some clay; the remainder is so thin that cars break through the surface causing chuckholes and washboards. Over every hill and around the turns in the last mile and a half of road we have rough places. Much of this road has been covered with sand on the windy days, and one man working full time has been pushed to keep the sand-dune section of highway in condition for travel.

PROTECTION

Other than an occasional rabbit hunter, as Hugh Miller can testify, we have had little trouble with hunting. A report that there was some poaching of duck from the artesian well lake was investigated. No recent hunting sign was found around the shores; however, it appeared that there had been an attempt made to build a duck blind at the end of the lake near the highway. Before this area was set aside as a game refuge, local people found the place good shooting grounds. An especially careful watch will be made during the migratory periods when the lake maintains a population of 300 wild game birds.

WEATHER

Typical March weather prevailed during the month. Eight days of high winds contributed to our decrease in travel. No real precipitation occurred with the winds, but we have had traces of rain twice during this period.

IMPROVEMENTS

Stock-fencing the water hole at Adobe Walls was completed early in the month. Signs around this spot indicate that the birds are finding it a convenient place to drink. Rabbits and other small mammals are also using the water.

We now have the gas-operated units installed in Residence No. One. The doors had to be taken off in order to move the Electrolux into the kitchen. After my experience with gas conveniences at Tumacacori, I thought I could make the adjustments necessary here. In spite of instructions the Crane water heater refuses to be automatic. With thermostats and needle points to set, rangers should have a course in mechanical engineering.

The comfort stations were painted and broken picnic tables repaired.

The weir at the artesian well was set in concrete. The wind blows water over the dike around the well-pool causing breaks, then the water level drops below the weir so that there is no through flow.

WHITE SANDS (CONT.)

CONSTRUCTION

Plastering the interior and exterior walls of the power house and gas-oil house remains to be done. Other than this, most of the buildings are finished; however, very little progress was made toward finishing Residence No. Two. Lack of plaster delayed operations in this residence.

Bright spots in the IM program were getting water under pressure and the electrical plant installed. A qualified electrician was hired for two weeks. All the wires were pulled and connections made in the Administration-Museum building and Residence No. One. The laying of parkway cable was finished and most of the switch boxes are installed and connected. In addition, painting of doors and walls and cleaning and treating of floors progressed. These finish jobs call for much skill and go slowly here due to the lack of competent workmen.

Engineer Cronyn surveyed out the proposed water lines to the new wells. No tests as to the amount of water available have been run due to the lack of pumping equipment. Whether the water will be potable is also a question, as no reports on it have been received.

SPECIAL VISITORS

James Green, water-color artist of Boston, was here for a week doing scenes in the White Sands. On February 23, Dr. Robert Hylander, botanist from Colgate University, discussed the plants of the monument with the ranger.

PARK SERVICE VISITORS

February 27, Hugh Miller, Jack Diehl, and Mr. Lackey. Charles Richey, Engineer Cronyn, Lewis McKinney, and Clark J. Wells visited the monument during the month.

GENERAL

With no holdups to report, we might say that this has been a quiet month, but the warm nights have encouraged parties in the Sands and, from the morning-after look, I would say that some of our visitors were anything but quiet. It is evident from the condition of the facilities that some of the inebriated consider Halloween an open season. Little damage has been done by these people, though, as we are only missing a few boards.

During the month the ranger groped with the problem of keeping our dudes on the main road until reaching the picnic area. It's a bit slow at present. Signs help, but are not the answer. One hundred per cent contact and instruction as to where to go will eliminate much trouble. Even then, I fear that we will have a small group of visitors who will

WHITE SANDS (CONT.)

disregard the rules.

Lewis McKinney was here with Mr. Morris of Gallup for a few hours. So that Lewis would feel at home, we staged the best wind storm of the season for him.

*****SWM*****

With conditions as they are at White Sands, with the roads running at some distance from the administration area and no control over the traffic, our visitor figures are still tentative, although they are better than the guesses we were having to make before our permanent ranger went to work over there. We hope it will not be long before we can get straightened out so we can keep more accurate figures.--F. P.

*****SWM*****

TUMACACORI

By Louis R. Caywood, custodian,
Box 2225, Tucson, Arizona.

Visitors this month, 1,407; total since October 1, 7,695.

TRAVEL

Travel continues to be slow with only 1,407 visitors for this past month. Last year for the same month there were 2,188 visitors. Of the 1,407, 1,156 were conducted through the Mission while 251 either saw it without a guide or in some way used the facilities offered by the monument.

The Custodian was absent from the monument most of the month on sick leave. He entered St. Joseph's Hospital at Nogales on the evening of February 21 for a major operation. He returned to duty on March 19.

Weather conditions were fairly good with much needed rain on February 27 and March 3, 4, and 12. Although March is the month for hard wind storms there have been but a few disagreeable days to date.

PARK SERVICE VISITORS

February 27, William Leicht; March 1, Tom Onstott; March 4, Al Bicknell and Gene Stonehocker; March 5 and 6, Dale King and bride; March 7, Luis Gastelum; March 8, Herb Maier and John Haile; March 14, Kenneth Wallace and H. Nelson from Mesa Verde National Park; March 16, Leonard Heaton and Natt Dodge.

Other government officers who visited the monument were Fred Winn, supervisor of the Coronado National Forest, on March 13.

TUMACACORI (CONT.)

Other visitors of interest were Major Brady and wife, of the Museum of Northern Arizona, on March 19. On March 23, Dr. T. Barbour, professor of Natural History, Harvard University.

During the month the government truck, No. HHI 1213 was taken to Headquarters. On 15 March, made an official trip to Headquarters on March 16.

ACCESSIONS

Eight lantern slides were received during the month, four from the Museum Laboratories at Berkeley, as follows: Slide of Pima Indian in 1840, Map of the San Pedro, Map of Pima County, Rep. of the Godden Purchase, 1803, Drawing of Pima in 1840, Pima, 1730, Drawing of Pima Village, 1730, and Drawing of California, 1768.

Several Black Fig seedlings were obtained and planted in the museum patio. The fig tree from which the cuttings were taken is near Amado, Arizona, and is believed to have been a cutting from a tree that was a cutting from the fig trees in the original mission orchard at Tumacacori.

Because of several deep water wells in the vicinity of the canal take off, the water level in this section of the valley has dropped so much that the canal, like the Santa Cruz River has dried up entirely. This means that the flow of water that used to feed the canal at the monument has ceased. The trees along the old canal can live before the summer rain come. The trees in the trees are silver peaches, one pomegranate, one walnut, two cottonwoods, and two willows.

Library accessions during the month included a complete file of the Kiva, published by the Arizona Archeological and Historical Society, Tucson, Arizona. Tumacacori was placed on the mailing list for the Kiva. The Pennarubias, Pioneers of Early Arizona, by Robert H. Forbes and The Yaqui Indians, by Phoebe Bogan were also presented to the Tumacacori Library by the Arizona State Museum. From Headquarters came a Bulletin of the Chicago Academy of Sciences, Vol. 5, No. 5, "A Herpetological Consideration of Faunal Areas in Southern Arizona", by Howard K. Gloyd.

*****SWM*****

We are very glad to get this report from Louis himself and know that he is back on the job and feeling pretty near normal.

We can't figure out where all those visitors have gone from Tumacacori and Casa Grande this year, as compared to last. F. P.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

Visitors this month, 150; total since October 1, 446.

WEATHER AND ROADS

Weather conditions are about all that could be desired. Clear, cool days ideal for hiking and just enough rain during the month to keep the sandy stretches of road well packed. During the first week of March we had a heavy rain in the monument which did slight damage to the temporary road.

VISITORS

There has been a marked increase in the number of persons visiting the monument this month. On Sunday March 6, a total of 78 visitors were counted. Several parties have spent one or more nights in the Windows area. I believe 150 would be a very conservative estimate of the number of visitors for the month.

MISCELLANEOUS

I have had several inquiries from persons planning to spend their vacation in this area. I have mailed a copy of the folder supplied by the Park Service to each of the inquirers and have answered one letter. From all indications we are going to have a pretty busy season this year. It seems that eastern Utah and western Colorado are becoming aware of the fact that Arches National Monument has something to offer in the way of unusual scenery.

The Moab Lions Club, in connection with local business men, plan to publish a folder illustrating and describing the features of Arches National Monument and the Moab area. These will be for free distribution. Although plans are yet not completed, it is hoped that the folders will be ready for distribution sometime next month. The club also plans to erect a suitable sign board at Crescent Junction directing the touring public to Arches, Natural Bridges, and Monument Valley.

*****SWM*****

It is certainly good news to hear that the Lion's Club is lining up so well behind Harry in publicity for the Arches. This is one of our monuments where we can stand almost any amount of visitors with very little vandalism and so we are anxious for them to come. F. P.

*****SWM*****

NAVAJO

By Milton Wetherill,
Kayenta, Arizona.

Visitors this month, 2; total since October 1, 83.

The weather for the National Monument has been cloudy or partly cloudy, excepting a few days which have been clear. The spring winds have started and with the wind we have more or less sand to endure. Snow still almost completely covers the south side of Be-ta-ta-ta Canyon, north exposure, and there are eight inches of ice in the bottom of the wash along the creek. Each morning there accumulates an inch of ice forms on the pond of water standing outside the kitchen.

No visitors of note have been in this month. I went to Red Lake March 16 to meet Bill Leicht who is taking over the Navajo. The next few days will be spent in showing him the lay of the land.

I went down to Cobra Head Canyon March 10 to look over another Dinosaur. It may be the same type as that which was found in 1933 in Keet Zeel Canyon, as it is on the same level approximately as that in Keet Zeel Canyon. Both were found below the limestone layer that occurs near the top of the Navajo Sandstone.

Trail work has been mostly clean-up work: a hole filled in, a hump cut down, a few rocks moved, and dead trees and brush cleaned up and removed.

*****SWM*****

NATURE NOTES AT BE-TA-TA-KIN

BIRDS OBSERVED

Woodhouse Jay	Mountain Chickadee
Canyon Wren	Spurred Towhee
Titmouse	Rocky Mountain Nuthatch
Red-shafted Flicker	Red-naped Sapsucker
American Raven	Western Robin
Long-crested Jay	Say Phoebe
Shufeldt Junco	Black Phoebe
Pink-sided Junco	Gray-headed Junco

New birds are arriving. The Spurred Towhee put in his appearance March 7, 1938; the Red-shafted Flicker came on the 15th; the Red-naped Sapsucker on the 17th; and on the 17th one Phoebe was seen.

On a trip down Tsegie Canyon on March 10, and from the forks of Tsegie Canyon to Cobra Head Canyon, (association Upper Sonoran Grassland) I noted the following birds: 200 Pine Siskins, 150 Cassin Purple Finches, 4 Chestnut-backed Bluebirds, 4 Mountain Bluebirds, 8 Mountain Chickadees, 4 Titmouse, 20 Juncos, 1 Marsh Hawk, and several Woodhouse

Jays.

On March 15, 1938, three Hopi Chipmunks (Eutamias quadrivittatus hopiensis) were seen below camp.

On March 18, 1938, one female Colorado Rock Squirrel (Otospermophilus grammurus grammurus) was caught in the government sparrow trap. This squirrel had young, which was indicated by the condition of the mammae and the bare patches where hair had been pulled to line the nest.

The catkins of the willows are in full bloom. Wild currant bushes are leafing out. The Skunk Bush will be in bloom in about a week, as will the Oregon Grape. Loco has been in bloom off and on all the year. The plants in Keet-Soel Canyon are several days ahead of those in Ba-ta-ta-kin Canyon. On March 15, plants collected by an Indian from Shonto were: Douglas Fir, Fendlerbush, Chokecherry, and Wild Rose.

On March 13, the first Water Scorpions, (Family Nepidae) were seen on a small pool below camp. A large number of Foxelder Bugs has been seen since the first of the year.

Birds banded during the month include: 13 juncos banded, 70 juncos repeated, and one Titmouse banded.

*****SWM*****

With this report Milton Wetherill turns the Navajo National Monument over to Bill Leicht who has been permanently appointed from the Civil Service list. This puts us in the position of being glad to welcome Bill into our Service but mighty sorry to have to lose Milton in order to get him. Milton's desert gods simply were not with him the day of that examination and we will all have to make proper sacrifices to them when the next examination comes up, for we are by no means giving up hopes of having Milton with us as a permanent man some of these days.--F. P.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 27; total since October 1, 284.

Old Man Winter would not give up without a struggle and the early part of the month supplied us with plenty of moisture, mostly in the form of rain, but certainly enough of that to virtually block our roads, especially to any outsiders. These wet flurries have given way to dry ones and the past few days have supplied us with such too much sand and dust.

CANYON DE CHELLY (CONT.)

Everything is normal as far as actual Park Service is concerned. Many Navajos are lambing their sheep early and it seems that they are plowing and clearing more land in the canyons than ever before. It surely seems nice to see big lambs this early in the season and life in the canyons makes the place much more interesting. Budding trees add to the setting and the Indians moving back into the canyons from the rims, everything is normal much earlier than it was last year.

No unusual maintenance was necessary during the month. Several days were spent trying to keep our roads passable, but the pickup is much too light for either the little grader or a drag, but then we did what we could. The Indian Service has graded the Chinle-Chin Lee road and old-timers tell me the entire distance into Gallup is better than it has been for years. If only some of the visitors knew that. It is reported that the road over the mountain is open, but even if it is, it most certainly would not be wise to attempt it as a pleasure trip as yet.

Boss, the Soil Conservation Service turned the tables on me and I will have to recall my statement in the last report about the planting being fenced. The crew was working on the fencing when I wrote, but only the holes were dug, a couple of posts set, and one strand of wire laid out for a short distance. For some reason the work was stopped, but I understand they hope to get at it again in the near future. I hope they can because it would be a shame not to protect the planting they have done. It is reported also that they are planning considerable work in the canyons. I have not been advised as to just the nature, but will cooperate with them any way it is possible, as long, of course, as any work will not conflict with the policies of our Service.

Visitors for the month number 27 which is just that number in excess of the total for the same month a year ago.

Regular inspection trips have been made but nothing unusual noted.

Naturally the season is bringing us many of our feathered friends and a number of ducks were noticed on the swamp just east of headquarters.

Taking it all in all, March marks a rather dull month, but with the concession receiving many inquiries for next season, a couple more tours including de Chelly on their trips, and Gallup giving us the usual support and aiding every way possible, we are looking forward to a busy season.

We cordially invite any of the boys to drop in and pay us a visit. In many of the areas most of the men can spare a day or so to pay us a visit and we will be glad to have any of them. I might even include

CANYON DE CHELLY (CONT.)

you and Hugh if I thought it would do any good. It has been two or three years since either of you visited me in my own unit. Anyway, come up and visit with me and let me show you Massacre Cave. I know that will be new to you.

*****SWM*****

We might tell Johnwill, as an excuse for not visiting him, what a former Director once told me when I was making the same sort of complaint to him. He said his time was so limited and there was so much to do that he was compelled to cut his trips to those places where there was trouble of one kind and another and, since there wasn't any trouble among the Southwestern Monuments, he just naturally did not get to come and see me. It sounds nice to me at the time and I pass it on to you for what it may be worth. Only don't tell some of these fellows where we do visit pretty often what the reason is.--F. P.

*****SWM*****

CHACO CANYON

By L. T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 391; total since October 1, 1,377.

This month has been pretty fair out here in God's Country with only a few west winds and dust storms.

The visitors have been coming in pretty well so far. The roads are in fair shape in both directions, much better than they were this time last year. However, they could stand some blading. I was away on annual leave for a few days this month. I took a look at the Carlsbad Caverns and the White Sands again. On my way back from the White Sands, I happened along just after a car had wrecked about half way between the Sands and Las Cruces. One of the ladies was from Coolidge, Arizona. There were five persons in the car, but only four were hurt. I took part of them in to Las Cruces and left for home soon afterward.

It looks like spring is here again. The squawberry bushes are leafing out, also some of the other plants. A lot of weeds are coming out. Also the prairie dogs are out for the summer.

I have kalsomined two rooms of the custodian's quarters, rebuilt the small ramada on the west side of the house, repaired the roof in several places, repainted the woodwork in the bathroom, repaired the cess pool, filled in several of the low places within the yard, transplanted a few native plants to help cover up the bare space near the house and museum, moved the large gate near the front of the house to the rear so the drive way would not be blocked by park visitors' cars. I have painted a large sign to be placed between the road in the custodian's quarters. It reads:

CHACO CANYON (CONT.)

Chaco Canyon National Monument Scheduled trips through Pueblo Bonito at

8:00 - 9:20 - 10:00 A. M.

1:00 - 2:20 - 3:00 P. M.

For other plans, See Custodian or Ranger
Custodian's Office and Museum
U. S. Department of the Interior
National Park Service

If there are any real sign painters in the Park Service, please send them out and help me, or stay off the monument, for I am just a shade feared. I am not as hot a sign painter as I might be. Ask Dale King for more information on my sign painting.

The University of New Mexico is digging a place for a water tank on the hill side just south of their main building. They are digging in that dark shale and most of the visitors want to know if it is a coal mine.

Dr. Brand plans to be out within a week or so with a group of his students to stay a day or so. A group from the school at Kirtland plan to be out for a visit soon. Also groups from Thoreau, Farmington, and Aztec schools will be out in April.

I have been asked for information from the schools at Las Vegas, New Mexico. I have sent out information to 13 others this month.

THREATENING ROCK

(Oh me) I started in measuring this each morning and evening, but had to take a few days off and haven't got a very good set of figures to present, but I am at it again. Anyway, here they are for the last four months:

Outward Movement:	East	Center	West
December	10/16 in.	11/16 in.	9/16 in.
January	12/16 in.	14/16 in.	12/16 in.
February	17/16 in.	17/16 in.	15/16 in.
March	19/16 in.	21/16 in.	17/16 in.

Climbing this canyon wall twice a day is certainly going to bring my grocery bill up. It doesn't look like this Old Pebble is going to stop moving just by taking measurements of it. If it keeps up this monkey business, one of these nights Old Man Mac of the Chaco will be awakened from his peaceful sleep by the crashing of one of the most wonderful old ruins new existing (Pueblo Bonito).

The maximum temperature has been up to 70 degrees this month and

CHACO CANYON (CONT.)

the minimum has been at 16 degrees. There have been three cloudy days, seven partly cloudy ones, and the balance clear. One and one-half inches precipitation have fallen.

We have had 391 visitors this month through the monument, coming in 161 automobiles and two aeroplanes. There were two lads who came over the other day in an aeroplane which was forced down just outside the monument. Just wouldn't run without discipline. After trading their watches to the boys for some groceries, they headed out for a few more miles of the country. Poor lads. I wanted to talk to them with them and take a few pictures, but it seemed as if they had other business, for when they left the plane was in

Five cats and one dog have left the monument for parts unknown. (The life of a cat is like mine, the life of a dog is a hard one.) It doesn't take courage to kill a week in this country but a friendly dog, but it certainly takes courage to stay in the Canyon afterward.

*****SWM*****

And so Threatening Rock is still on the move! It remains to be seen if it is a steady movement, a little from week to week, from day to day, or if it moves a little, pauses two or three weeks, and then moves again. Also, might there be a seasonal movement, forward in winter and backward in summer? I rather suspect this latter may be true, otherwise, if there has been a forward movement of $\frac{1}{8}$ inches per year for the last four hundred years, something would have happened.--F. P.

*****SWM*****

TONTO

By Thomas B. Onstott, in charge,
Roosevelt, Arizona.

Visitors this month, 612; total since October 1, 2,835.

This March started out like a lion and ended up like a lamb for Tonto--climatically speaking. During the first 15 days on this report, there was a great deal of rain and generally-no-good weather for dirt-road travel; thus leaving the Apache Trail in the same boat with the forgotten man.

While we are on the subject of weather, I might state that I now find that there is too much difference between Tonto's weather and the weather of the water users station at Roosevelt only five miles away. The difference can be laid to the change in altitude. We are one thousand feet higher and consequently on the edge of mountain rains that do not touch Roosevelt. It seems strange, but it is, nevertheless, true. I wish we could install a station here to check the difference.

On looking over the floral situation, I would say that this year

TONTO (CONT.)

we are short changed. The signs "Please Don't Pick Flowers" are going to be the subject of some ridicule, I am afraid, as there are not going to be as many flowers as in previous years. Last month I was howling about lack of rain. We got the rain all right, but too late, I fear.

Little trail work was done this month as most of the maintenance time was spent on the road. A blade was borrowed from the State Highway Department, and three trips made over Tonto's Miracle Mile on March 20. One of the highway workmen very kindly donated his time for the work.

Visitors for the first part of the month were, of course, rather few. However, the last few days there have been a good many. The last two Sundays have had over 100 visitors each, which is quite a few for here.

I fear statistics for SWM 16 aren't so good this month, but here they are:

Total visitors	612
Total registered	379
States	25
Foreign countries (Germany and Canada)	2
Field trips	78
Attendance	312
Average attendance	4
Time	2,860 minutes
Average time	36.4 minutes
Museum trips	42
Attendance	156
Average attendance	3.7
Average time	17 minutes
Special parties	2
Time	240 minutes
Total guided time	4,310 minutes
Total unguided time (estimated) Exclusive of time on road & camping	1,945 minutes
Total time of visitors on monument (estimated)	10,440 minutes
No. of cars	181
Per cent of contact	78
Total museum time	714 minutes

On the evening of March 16, a trip was made to headquarters to attend a lecture on the Sonoran Desert by Jack Whitehead of the Boyce Thompson Southwestern Arboretum. Another trip was made on the 19th to get a truck for road work. Now, I must close this so I can get Al's truck back to him before midnight--if possible.

*****SWM*****

TONTO (CONT.)

We just want to call attention to the fact that Tommy did his road work on Sunday so the highway employee could donate his day off to handling his sleds on our road. We call that real cooperation, and it is characteristic of the Highway Department all over Arizona; wherever we contact them we find them a mighty fine bunch of men. --F. F.

*****SWM*****

EL MORRO

By [redacted] Indian,
[redacted]

Visitors this month 34; total since October 1938 100.

This report will be somewhat short. The month has been very quiet, roads have had nothing to boast about, some places impassable, and travel very slow. The custodian was unable to do much of the more strenuous work he intended to do, due to an ankle sprain but partially successful attempt to break a hard or icy trail. Consequently much of the outside work that was scheduled for this month has had to be postponed until next month.

WEATHER

The Weather Bureau station was received, and went into official operation on the first day of the month, so we can report briefly on the weather for these first three weeks. Maximum temperature was 56 degrees on the 20th; minimum 14 degrees on the 31st; precipitation was 1.44 inches; snowfall (March 4, 5, 8, and 15) 9-3/8 inches. The moisture was mighty welcome since the range in the immediate vicinity was very dry due to inadequate precipitation during the preceding portion of our so-called winter.

ROADS

These were somewhat difficult to find on numerous occasions during the month when they were covered with several feet of mud, and as a consequence we have had very little visitor travel. The ground is about free of frost now and, unless we get some more precipitation and some really cold weather, it begins to appear that we won't have bottomless roads due to the usual spring thaw, for apparently there is nothing to thaw. If weather continues moderate, the coming month should mark the beginning of the season's travel.

VISITORS

There were 34 visitors to this monument during the travel month. We contacted all who took trips, either guided or unguided. Trips were made as follows:

EL MORRO (CONT.)

Trail (unguided, by permission): No. trips, 3; total persons, 9; total time, 170 minutes; average persons per party, 3.0; average time, 56.6 minutes.

Trail (guided): No. trips, 1; total persons, 2; time, 60 minutes.

Inscriptions (guided): No. trips, 6; total persons, 20; total time, 390 minutes; average persons per party, 3.3; average time, 65 minutes.

Inscriptions (unguided, by permission): No. trips, 1; persons, 2; time, 40 minutes.

Picnics: 1; persons, 4; total time, 150 minutes.

Office (educational): No. "visits", 3; total persons, 8; total time, 775 minutes; average persons per party, 2.6; average time, 258.3 minutes.

WILDLIFE

Like the little prairie flower, it is growing wilder hour by hour. Reason: two domestic cats, gone wild and living off the fat of the monument. The custodian has been decidedly worried over the matter, for not only do the cats destroy birds and rabbits, but we expect our quail to arrive shortly, and the sooner we can dispose of those cats the better. Many hours have been devoted to the stalking of the elusive kitties, but they have succeeded in remaining out of sight with but one exception. One that occasion, one of the cats was seen and promptly died of acute lead poisoning. We trust the other will soon follow his example.

The Golden Eagles are still at the Rock, and during the month have been carrying new branches to the old nest, high on the north face of the rock. On March 18 the female was observed to be sitting on the nest, and we are hoping that the blessed event will be twins or triplets.

The swallows returned to the monument the evening of March 21. Numerous meadowlarks are now with us, quite a number of robins and bluebirds, and a canyon wren serenades us daily. Spring is either here or just around the corner.

WATER

Well, well, well!

AUTOMOTIVE EQUIPMENT

I had to write about this last month, but it is necessary to write further on the subject. The hot water heater in the truck is not only a fine invention, but would have been very greatly appreciated had we had a real winter. But it can cause trouble. On March 16, while I was returning to the monument from Ramah, the motor temperature gauge began climbing the scale while I was about eight miles from the cabin. The car was stopped and after considerable search the trouble was located: one of the copper pipes that passes through the steel dash to carry the hot water to the heater had cut through from the constant vibration against the edges of the hole in the dash. I won't go into detail relative to how I got home again, but it was a long process. The next day a repair was made by soldering the cut pipe and sweating a metal sleeve over the pipe, and a series of wedges inserted between pipe and dash to prevent further difficulty. It is a good idea to check such pipes from time to time, for when such an accident occurs and there is no water nearer than six or seven miles, it can be somewhat awkward.

QUARTERS

Boss, something will have to be done about the enormous size of our present domicile before we get the coming season's heavy visitor travel. This two-by-four pillbox is so small that it is only possible to crowd in two visitors at a time, and while parties of four or five people have been most kind about waiting outside and taking turns coming into our cabin -- which is also our educational office -- it is rather hazardous. One of these days someone is going to break a leg, trying to turn around to walk out. It can't be done -- one has to back out if he came in facing forward. Besides, the custodian must purchase another pair of official boots shortly, and then there will be no room inside the cabin for the custodian, let alone visitors. Can't something be done about it? The situation is grave.

GENERAL

Some work was done grading roads within the monument, and the coming month should find them in much better condition. General clean-up of the area goes on regularly, and the monument is just about ready for the coming visitor season. Some work has been done on the trail, and it is in remarkably good condition on the north side, due primarily to the mild winter. The stone steps on the south side have continued to disintegrate and I'm afraid they never will prove satisfactory until replaced by concrete, much as I dislike the idea. The northeast point of the Rock shows appreciable weathering as a result of another winter, even though it was such a mild one, and it won't be very long before some of those more modern inscriptions located on the point will be gone. Rock falls continue, almost daily. As soon as the rock dries

EL MORRO (CONT.)

out, we hope to start the photographing of each of our hundreds of inscriptions, so that we will have at least some sort of accurate record of those that soon will be gone.

*****SWM*****

It is true Bud is waxing a little facetious about the size of his quarters, but he is jokingly calling attention to a definite trouble. His quarters were built 12 or 15 years ago as a three sided, covered, open-front shed which would cover one or two automobiles and give camping protection to their occupants. Later on, we housed one end of this shed in and made quarters for the temporary ranger, leaving the remainder as a shed for his car. Now that we have a permanent Custodian who is married and has a certain amount of household effects, the situation grows complicated.

For the last two or three years, we have not been allowed to put in estimates for construction of this kind when we were making up our estimates under our regular appropriation, being told that such construction was supposed to be taken care of under the emergency funds. We have not, however, been able to get a house under any of the emergency funds and we cannot muster a program large enough to use a CCC camp at that monument.

During the month the Publicity Division got out a wonderful script for a thirty minute radio period dealing with El Morro. F.P.

*****SWM*****

CHIRICAHUA

By Frank Fish, custodian,
Douglas, Arizona.

Visitors this month, 547; total since October 1, 3,241.

WEATHER

During the latter part of February and the first part of March, the weather was unsettled. Storms occurred on February 27, March 3, 4, 8, and 12. The storm of the 3rd and 4th amounted to around two inches of precipitation. Bonita and Rhyolite canyons started running for the first time during the year as a result. Since March 12 the weather has become warmer. Prevailing southerly winds are drying things up generally. The past winter has been milder and pastures are about 30 days ahead in growth, compared with last year. However, the expected dry season starts about this time of the year and further heavy storms are not expected until July.

ROADS

Approach roads have been maintained in good condition all winter.

CHIRICAHUA (CONT.)

Bids are to be opened soon on five and one-half miles to be surfaced from Elfrieda toward Douglas. Upon completion of the above section, there will be only ten miles of graveled road left between Douglas and Elfrieda. Surfacing exists ten miles this side of Elfrieda at the present time and last month saw the completion and dedication of the surfaced road from Bisbee Junction to Elfrieda. Surveys for re-alignment of U. S. 80 between Bisbee and Bisbee Junction are underway. This short section consists at present of concrete pavement and has many short turns. For some reason, re-alignment has been suspended on the county road between the monument and Dos Cabezos. However, the section completed is a great improvement, cutting out many short curves on both sides of Dos Cabezos.

VISITORS

An increase in visitors over March, 1937, is shown. One large party of 59 CCC enrollees from the nearby Rucker Canyon Camp was in the 13th and took a seven mile hike to the "Heart O' Rocks" area and back. Although they were scattered all over that area, in, around, and on top of the rocks, no accidents occurred nor strays lost. We are getting many compliments on the scenery and trail system of this area, especially Echo Canyon. Mr. Bennett, manager of the Diamond "J" in Montana, claims we have a better trail system than Yellowstone. He runs the "Diamond W" near Tucson and intends bringing his "dudes" here often. He also stated that he had to turn away many guests this winter.

A Michigan party complained about high rents in Tucson which caused them to spend the winter in California.

VISITOR STATISTICS

	<u>Cars</u>	<u>Visitors</u>	<u>Out of State</u>
1938	139	547	195 or 35.6%
1937	130	488	185 or 38.0%

EDUCATIONAL CONTACTS

<u>Number</u>	<u>Attendance</u>	<u>Minutes</u>	<u>Av. Attendance</u>	<u>Av. Time</u>
80	390	4,465	4.8	55.8 mins.

GENERAL

Three stray cats were eliminated during the month.

Strict orders were given that all dogs must be kept on leash and a sign has been placed at the Checking Station, -- "ALL DOGS AND CATS MUST BE KEPT ON LEASH OR IN CARS".

CHIRICAHUA (CONT.)

Ed and Lillian Riggs are preparing to erect a service station and store on their land adjacent to the camp ground and bordering the Bonita Canyon Highway. Hacks trips from Massai Point have met with some success on the two days they have been tried out.

Deer are noticed quite frequently crossing the road in and out of the monument. Lion tracks are seldom seen in the area, the average being twice a year.

The first rattlesnake was noticed by Ed. Riggs in Sara Doming Canyon on March 1. Lizzards are out in large numbers.

James Minton replaced Savoy as clean-up man during the month. Minton voluntarily helps out in guide work on Sundays.

The registration of visitors takes up quite a bit of time at the checking station; time that could be utilized for suggestions and answering questions. This is more noticeable during rush periods. To render better service, it is suggested a substitute form be prepared on which the checker tabs the license number, number of persons in the party, and where they are from.

*****SWM*****

We are quite agreeable to the proposed change in checking visitors and suggest that you try it a month, Frank, and report on it. We do not want to bother the visitor with statistics a moment longer than is necessary and any way of shortening that part of the contact and lengthening the informational part of the contact will be satisfactory with us.--F. P.

*****SWM*****

CHIRICAHUA CCC

By Ed. F. Knagge, acting superintendent, Douglas, Arizona.

Backsloping was carried on during the month and approximately 500 square yards of rock have been removed at a location about two and one-half miles north of the intersection of Massai Point and Sugar Loaf Truck Trail. Materials were used in surfacing and dressing up where wash outs occurred.

Several slides occurred after a fairly heavy rain and snow, the largest slide amounting to some fifty yards. Ditches and culverts were cleaned and the road is in good shape again.

One quarter mile of highway surfacing has been accomplished this month, including the headquarters road.

Trail maintenance has been carried on during the month and the

CHIRICAHUA CCC (CONT.)

Sara Deming trail has been completed for a distance of two miles.

Backsloping, drainage, resurfacing, and clean-up was done on this section.

The Employee's Residence is about 95% complete. Inside painting is about finished and the outside painting will start in a few days. Light fixtures have not been selected for this job as yet, but we hope to have these soon.

Extension of Utility Area is about 80% complete. We expect to finish this excavation in about two weeks. Some materials removed from this excavation have been used in filling old borrow pits.

The masonry wall around the Utility Area is 50% complete. It has been brought up to full height for a distance of 110 feet.

Some work on borrow pit elimination was done this month in order to straighten it out for further dumping.

Work at the rock quarry has been light this month, due to a supply of rock on hand.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 926; total since October 1, 4,716.

GENERAL

Travel to this monument for the month of March has been excellent, with a net registered total of 926 people, who entered the monument in 209 cars and buses. Travel for the month of March, 1937, was 551 people. This is an increase of 375 people.

Roads have been in good shape all the month in the Animas Valley. Snow and icy roads in the higher elevations have been somewhat slippery. Wolf Creek Pass has been closed a part of the month due to snow slides. This pass being closed has affected our travel to some extent. However, our records reveal that we have handled about the same number of parties, but the parties are larger for the month of March than for the months of January and February.

WEATHER

During the month of March we have had a lot of different kinds of weather. The first part of the month we had much rain, a little snow that melted as it fell, a few nice warm sunshiny days, while the

AZTEC RUINS (CONT.)

latter part of the month we have experienced much wind.

WEATHER STATISTICS

Maximum temperature-	- - - - -	-69 (March 13) ;
Minimum temperature-	- - - - -	-19 (Feb. 24 and 25.)
Total precipitation-	- - - - -	-2.34 inches.
Greatest amount recorded in 24 hours	- - -	.64 (March 4.)
Clear days	- - - - -	9
Cloudy days-	- - - - -	-13
Partly cloudy-	- - - - -	6

INTER-MONUMENT TRANSFERS

"Birds of New Mexico" by Mrs. Bailey, was transferred to Tonto National Monument at the request of your office, under date of March 14.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

Due to large parties and special groups of visitors that have visited this monument during the month of March, it was necessary to brace and re-inforce the floor of the museum on the west portion of the building. While the floor would take care of light traffic, it was not built to handle large parties. The floor would shake and vibrate, rocking two or the museum cases so much that it was almost impossible to keep the artifacts on the shelves. This work began on the 19th. To date, it is 85% complete. This work has somewhat interfered with other work, such as guide duty in the ruins and museum. However, I have continued to work on this job at odd times. Most of the shake of the floor has been eliminated.

Work on the grounds is a little retarded due to insufficient funds. Much clean-up work has been done, but the irrigation ditches have not been cleaned. This must be done before we can water the few hundred trees in this monument. Much rain and snow has fallen during the month and the ground is in fine shape. However, the spring winds will soon dry the soil out and it will be necessary to do considerable work on the grounds during April.

ACTIVITIES OF OTHER AGENCIES

The Home Economics classes held their District Convention here and visited the Aztec Ruins and museum in a group on March 12. In the party were 279 guests registering from New Mexico, Arizona, and a few from Colorado and Oklahoma. This was a very interested and interesting party. A lecture was given for this group in the Great Kiva where we have plenty of room to seat a large crowd.

AZTEC RUINS (CONT.)

The Welfare groups from Gunnison and Durango, Colorado, were monument visitors on March 22. This was a party of sixteen officials of that organization.

PUBLICITY

This monument has received a lot of publicity during the month of March through the Associated Press in regard to the Easter Sunrise Services. Pictures of the ruins were in the Denver Post on March 20.

This monument has had many inquiries from travel bureaus during the month. The Conoco Travel Bureau, Denver, Colorado, requested information on the Easter Services held here to be used in the thousands of Touraide Guides that they put out each year all over the country.

TRAVEL

Coming from 21 states, 926 people entered the monument in 209 cars and buses. Travel for the month of March, 1937, was 551 people. This is an increase of 375 people.

Total travel since October 1, 4,716 people; for the corresponding period of last year, 3,088 people; increase, 1,628 people.

GUIDE SERVICE

Total visitors contacted and guided through the ruins and museum or both, 866.

Number of field trips - - - - - 102 with 810 persons.

Number of museum trips - - - - - 107 with 857 persons.

Special or un-guided trips - - - - - 2 with 31 persons.

Total guide time in field - - - - - 3,580 minutes.

Total guide time in museum - - - - - 2,680 minutes.

Visitors total stay in monument - - - 7,318 minutes.

*****SWM*****

It is interesting to see how Aztec continues to forge ahead of other winters, and I am inclined to attribute the greater part of this increase to the efforts of Colorado to keep the Wolf Creek Pass open so Colorado people and eastern visitors can get over into the southwestern corner of the state.--F. P.

*****SWM*****

GRAN QUIVIRA

By George Boundey, custodian,
Gran Quivira, New Mexico.

Visitors for the month, 224; total since October 1, 1,072.

GRAN QUIVIRA (CONT.)

As you know, March in this country is the very worst month of the year. This March has been no exception, many days one could scarcely see more than one hundred yards on account of the dust.

We are much in need of rain, as most of the cisterns are dry and many of the deep wells are producing but little water for the cattle.

Seventy-five per cent of our visitors came from 100 miles or more distances and without exception, all were much interested in spite of weather. Some people from a distance bring their lunches. At present we invite visitors into the residence to get warm, but if we had a public building where fire might be maintained during the colder weather I am sure we would have many more visitors during the winter months. Many visitors have babies and small children which have to be carried. If these children could be left in a comfortable waiting room, older people could enjoy the ruins a great deal more and I am sure they would come oftener and bring their friends.

Several large new signs advertising Gran Quivira National Monument have been erected at Mountainair and along Highway 60. The Magnolia Oil Company, at their own expense, have erected a large sign at their new filling station advertising the ruins. It is well painted and the base is set in concrete.

Several times since coming to Gran Quivira I have heard of a large Pueblo ruin in which could be seen the ruins of a church. I have tried several times to locate the ruin without success. On March 23 in company with a Reverend Hilgard, who is making a study of early mission history, we spent the day in search of this ruin and finally located it. In the east end of the ruin in what seems to be a courtyard is the remains of what has every appearance of having been church walls. In some sections the fallen walls have retained their shape on the ground and were from thirty to forty feet high. A little excavation with pick and shovel would expose the foundations and the full outline of the structure could be traced. It is my understanding that the true church of Tiberia did not have a monastery. There is no indication of a monastery in connection with this church.

Eight miles from this ruin we located another ruin of good size but without any church indication. I have since been told by a trapper that there are two other ruins which we failed to locate in that vicinity.

In connection with all the ruins I have so far located in this country, are large tanks for the storage of rain and snow waters.

All winter birds are so far with us, but on March 12 the Yellow-bellied Fly-catchers returned, tho' they have every appearance of wishing they had not come.

GRAN QUIVIRA (CONT.)

The old timers here look back on the spring of 1936 as having been the banner year for wild flowers. There was too little rain in '37 to bring out anything but the more hardy ones. Unless we can get more rain soon, the crop this year will be nil.

*****SWM*****

The possibility of another mission in the neighborhood of Gran Quivira is interesting but doubtful. If the argument is that this other mission will be the real Fabira, then would it not be necessary to find two churches there, one old one built in about 1630 and a new one started about 1650? If by monastery you mean the complex group of rooms attached to the church, then the old church at Gran Quivira will fit your statement that the church did not have a monastery. If by monastery you mean that several persons were attached to the mission at one time, I don't know where you would go in the records to get support for the statement. The complex group of rooms attached to the churches at Abo, Quarai, and the late church at Gran Quivira might make us think of half a dozen monks or Padres, but the historical records hardly bear out such a supposition. More likely they were warehouses, store rooms, work shops, etc. Could the newly discovered building which you report have been a visita under the charge of the Padre at Gran Quivira? Let us know more about it with photographs if you can get them.--F. P.

*****SWM*****

CAPULIN MOUNTAIN

By Homer Farr, custodian,
Capulin, New Mexico.

Visitors this month, 600; total since October 1, 3,600.

We have had about six hundred visitors this month all of whom have been able to visit the top of the volcano while most of them have made the foot path around the rim.

While the road has not been in very good condition, it has been passable all winter and, with the exception of lava and rock sluffing into the road, it has been in fair shape.

Weather conditions have been almost ideal the entire winter. While we have had seven or eight light snows, they have not been accompanied by the usual high wind and no snow drifts of any consequence have been noticed this winter. Considerable moisture is now in the ground so we will, no doubt, have early grass and flowers.

We now have about two inches of snow on the ground but this will probably go today. We have just had three days of northeast wind, but we have really had very little dust this winter and spring. We are all in high hopes that the drouth is definitely ended and we now feel that we are out of the "Dust Bowl".

CAPULIN MOUNTAIN (CONT.)

Wild life is beginning to come out from hibernation and I note where squirrels have been digging up their last fall's covering of nuts. We now have 14 deer in the monument. There are four large bucks with beautiful sets of antlers. Robins have not left the monument at all this winter therefore we have a hard time telling when spring comes by the coming of the robin.

Our porcupines are still by far too numerous and, in spite of some thinning, are still doing entirely too much damage to the trees. Recently I have noted more 50 trees freshly barbed.

For a while this winter had high hopes of getting the long-wanted retaining wall on the monument, but now I am afraid we will have to wait for a while.

*****SWM*****

CASA GRANDE

By A. T. Macmell, custodian,
Coolidge, Arizona.

Visitors this month, 3,445; total since October 1, 20,665.

WEATHER

Days clear-	- - - - -	-16
Days partly cloudy-	- - - - -	4
Days cloudy	- - - - -	8
Maximum temperature	- - - - -	-85 on the 11th and 20th.
Mean maximum temperature-	- - - - -	-76.2
Minimum temperature	- - - - -	-72 on the 15th.
Mean minimum temperature-	- - - - -	-42.0
Precipitation	- - - - -	1.14 on the 3rd, 4th, and 27th.

Just to show how far wrong a fellow can be once in a while, this morning when we were checking up on the weather for the past month, the custodian was willing to bet money that it had been cooler this month than it was in March last year. Actually the mean maximum has been about one degree higher than it was last year, and the mean minimum has been more than three degrees higher. During half of the month the night temperatures dropped below forty degrees, attaining the minimum of 32 degrees on the 15th. The rest of the time we had regular spring weather. Three days during the month were disagreeably windy.

GENERAL

Visitor travel to the monument this month dropped considerably as compared to March of last year. Only 3,295 visitors came to the Casa Grande whereas in 1937 there were 3,912 visitors. We have not been able to figure out any reason for this, although the service station

CASA GRANDE (CONT.)

men claim that it might be due to the fact that the tourist travel to the East has not started yet. Most of our travel is still of the "winter visitor" type. From the register we find that 45% of them come from Arizona, California 9%, Illinois 6%, Texas 3%, New York 2%; thus accounting for 65% of the total travel. The others were scattered from the northern states chiefly.

On March 6 the Boss pointed out sections of a prehistoric canal to Custodian Bicknell. The Custodian, Ranger Jones, and CCC Guide Coyle went to trace this canal, but met with little or no success, because the canal appeared to surmount impossible grades. We were, however, able to trace portions of the canal which supplied water to the Casa Grande, and took photographs where possible.

CCC Guide Coyle made an interesting discovery in regard to the so-called "Sun Holes" in the Casa Grande, which might shed some light as to whether they are prehistoric or not. More about this in next month's report.

During the month there were two instances where names had been written upon the wall of the ladies' rest room. In both cases letters were written to the parties involved, presumably young girls. Fortunately we have had but little trouble with this sort of thing in the past.

Custodian Bicknell made a trip to Tumacacori with Mechanic Stonehocker to bring USDI 1813 up to headquarters to be repaired.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Total travel: 1938--3295; 1937--3912; 1936--2705; 1935--3335.

Of the 3,295 visitors to the monument, 2,995 were guided through the ruins, the museum, or both. It required 12,159 minutes to conduct 335 parties through the ruins for an average time of 36.2 minutes. In the museum 4,202 minutes were spent with 199 parties for an average time of 21.1 minutes.

With the coming of warmer weather, our picnic grounds have proven to be more popular than they were several months ago. We counted 53 groups of 298 people using them during the month. Among them were the following: a group of 65 from the Baptist Sunday School in Coolidge, Arizona; a group of 48 from the Latter Day Saints Sunday School of Mesa, Arizona; 30 employees of the Indian Service at Sacaton; and 20 children from the grade school at Picacho, Arizona.

NEWSWORTHY VISITORS

N. P. S.--Charlie Steen and wife of Tumacacori the 17th; Tommy

CASA GRANDE (CONT.)

Onstott from Tonto National Monument on March 1, 16, and 19; Leonard Heaton and wife of Pipe Springs National Monument on the 16th; Mr. and Mrs. Emil Haury from Yosemite National Park on the 8th.

On February 25 Emil Haury spent a good portion of the morning showing us things about our museum that we did not know before. We always like to let him drop in to see us because, when we let him go, we have a good time and our time was well spent. Jack Whitehead of the Boyce Thompson Arboretum at Superior is another fellow toward whom we feel drawn. Indeed on the evening of the 13th he gave us an illustrated lecture on the plant life of the Sonoran Desert. Some of the boys are still talking about it.

Other visitors for the month have been Mr. and Mrs. J. B. Priestley of London, England; A. L. Fisher, School Department of Psychology of Cornell University; Mr. Eugene H. Moore, professor of Medieval History at Columbia University; Dr. and Mrs. T. D. Cook, Fellow of the University of Colorado at Boulder, on the 27; C. Clay Aldridge of the Newark Museum, Newark, New Jersey; Mr. and Mrs. Howard W. Houghay, of Amherst College, Amherst, Massachusetts; Mr. F. G. Steenburg, Fond du Lac, Wisconsin.

NATURE NOTES

The desert is just beginning to burst forth into color for the spring months. The first Creosote Bush blooming under natural conditions was reported on March 12. Many of the small annuals have just started blooming in the last week. During this next month we have hopes of making a complete collection of plants, noting when they begin to blossom.

Custodian Bicknell reported seeing three robins on the monument on March 7. This is the first time this year that they have been reported here, although there have been a number of them seen around the town of Coolidge. Mrs. Owl, reported last month as sitting on a nest, is still sitting. We are beginning to wonder.

The "Desert Trail" which has been hanging over the head of Ranger Jones for the past few months will be under operation as soon as we can find time to mimeograph the guide leaflet. By next report time, we can tell whether or not our efforts have been in vain.

*****SWM*****

CASA GRANDE CCC SIDE CAMP

Work on Job No. 50, Shop Construction, has progressed as far as our funds will permit at the present time. Eighty-seven man days were used on this project finishing the roof, wall cornice, and excavating and preparing to pour the concrete floor.

CASA GRANDE CCC (CONT.)

There were 103 man days spent on Warehouse Construction, Job No. 51. Work on this project includes: excavating and making the forms for the foundation of the building; the store room foundation was poured and the paper mopped on top of the foundation to prevent capillary action; also the sand gravel was hauled to the location.

Eighty-four man days were used on Guide and Contact Work, Job No. 53. This includes two enrollees on the headquarters staff. Buster Baldwin replaced enrollee Hale, who was called home on account of sickness. Buster was returned to the mother camp on account of his pugilistic activities, and the job is now filled by Wayne Eppes. Other changes of enrollees were: T. Martinez and Victor Flores filled the vacancy of Baldwin and Romero; on the 21st Johnny Smith replaced Ramirez.

Thirty-seven man days are accounted for on Job 54, Clean-up. The boys finished removing all the old adobes from Compound B, filled the old well, and completed the clean-up in this vicinity. The roadside ditches and a part of the southeast corner of the monument have been given a general cleaning.

We used 44 man days on Job No. 55, Manufacturing Adobes for the Warehouse. This work was speeded up by using the concrete mixer to mix the mud.

Safety meetings were held on Thursday of each week.

Camp inspections were as follows: Educational Advisor Beaty on the 1st, 13th, and 21st; Lt. Guenther, NM-2-A, on the 2nd and 3rd; District Surgeon Barker the 6th; Lt. Keiling, Commanding Officer, BR-19-A, the 9th, 17th, and 20th; Lt. Lee, Commanding Officer, NM-2-A, the 13th; Engineer Tovrea the 8th; Acting Project Superintendent Knagge, the 16th. Chaplain Probert held service in camp on the 14th with 19 enrollees attending.

We enjoyed a lecture on the Pueblo Indians illustrated with slides and movies by Harry T. Getty, Professor of Archeology, University of Arizona. While this lecture was primarily for Ranger Jones' archeology class, nearly all the enrollees as well as many of the Park Service personnel and their families attended.

*****SWM*****

We can't forego the chance to throw a side light on this sun hole discovery mentioned in this report about which more is promised next month. Without releasing any information regarding the discovery, we want to show how ingenious these folks of ours are.

As a result of Coyle's discovery, we wanted to get a complete

cast of the inside of a hole about an inch and a half in diameter and four feet long which ran through one of the walls of Casa Grande. You could not, of course, pour it full of plaster of paris or any substance which would harden too much because you could not slip such a core out. Bina Hunsaker finally hit upon the scheme of using a stiff dough, using plaster of paris, making a long string of it, winding the string around the hole, pulling it back, putting this prepared core into the hole, letting the dough dry and harden, pulling the string out, breaking the hardened dough into sections, giving the section a number and thus getting a negative of the shape of the hole from which a positive could be made of any material desired. Pretty ingenious, wouldn't it? Only the wall was so cold the yeast didn't rise in the dough and so no impression could be obtained!

The next attempt is to keep the dough around a metal pipe, use a blow torch to heat the wall with the pipe thus raising the dough and cooking it, then slip the core out and pressed as before.

If any reader has any thing to offer, the boys will be glad to get suggestions in case the current proposal fails.--F. P.

*****SWM*****

NATURAL BRIDGES

By Zeke Johnson, custodian, 62 $\frac{1}{2}$ S.
Main St., Salt Lake City, Utah.

It is once more springtime in the Rockies, and I will soon be back on the job at the Natural Bridges. I am glad that this will be my last report from this city for this year.

March has been the wettest month ever recorded for this State. It has not been cold, but lots of rain and snow. It has also been the most interesting month that I have ever spent here. I have enjoyed the best of health and have met for the first time many fine people as I have been invited to speak to 14 groups, some during regular religious services. Some have been groups of Boy Scout workers with their wives, Scout Jamborees, Scout Socials, etc. In these 14 contacts I have talked to 1,286 people and, believe me, I told them about the beauties of nature found in San Juan County and all of the other scenic wonders adjacent to it. Many wanted me to help them plan a trip of four or five days, some for eight or ten days, and I have gladly done it. For an eight or ten day trip, I told them to visit Arches National Monument, then on to Natural Bridges, Goose Necks, Monument Valley, Kayenta, Tuba City, Navajo Bridge, Grand Canyon, and back home by Zion and Bryce National Parks. But for a four or five day trip, I told them to visit Arches, the Bridges, and then either Goose Necks or Mesa Verde National Park, and back home.

I have never had such a wonderful opportunity before in my life to put the Bridges and all the surrounding country, even the whole south-

NATURAL BRIDGES (CONT.)

western group of monuments, on the map for this city, and I am sure that we will have many visitors from Salt Lake City next summer. Mrs. Johnson has also been able to speak to several groups, and she claims 160 contacts for Natural Bridges. She loves to talk for our monument. I have not counted the many contacts I have had in house socials, hotel lobbys, information bureaus, museums, and on the streets. Never has a day passed this month without several short talks about the Four Corners country, or some part of Southeastern Utah.

I have talked to Mr. McGibbeny about the D & RGW Railroad bringing tourists into the country that Harry Reed told you about, and I believe something will be doing in the near future.

Boss, my conscience is clear this month! I think I have earned my one dollar; what do you say?

*****SWM*****

We at headquarters think that Zeke earned his dollar in March and have put him on the payroll for that amount.

It looks like we are going to be able to furnish Zeke with transportation this year when he goes out on the job and he will no longer have to run his personal car in the Government service. At least some things come to him who waits, Zeke, after the first ten or fifteen years of waiting.--F. P.

*****SWM*****

MONTEZUMA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 380; total since October 1, 3,288.

VISITOR STATISTICS

Visitors this month- - - - -	380	Average Time- - - - -	60.5 min.
Cars - - - - -	118	Museum Talks:	
Horseback Riders - - - - -	10	Number- - - - -	61
Total States - - - - -	31	Attended- - - - -	182
Foreign Countries- - - - -	3	Time- - - - -	1,368 minutes.
Field Trips:		Av. Attended- - - - -	2.9 persons
Number - - - - -	76	Av. Time- - - - -	22.4 min.
Attended - - - - -	260	Unattended- - - - -	142
Time - - - - -	4,600 min.	Total contact - - - - -	442
Av. Attended - - - - -	2.9	Percent contact - - - - -	116

SPECIAL VISITORS

Park Service: J. H. Tovrea, assistant engineer, spent half an

MONTEZUMA CASTLE (CONT.)

afternoon on inspection and checking a safety report on the Castle.

Newspaper Editors: March 7. The and Mrs. William C. Krug were very interested visitors. He is an architect from Chicago, Illinois.

Mr. Robert J. Chester and Mr. J. H. Arnold, instructors at the University of Arizona, spent overnight and were very interested in the plant life on the day.

Mr. J. H. Arnold, of Chicago, was a very interested visitor. He is a naturalist and an artist.

WEATHER AT MONT.

Precipitation	- - - - -	- 2.10 inches.
Days Clear	- - - - -	- 3
Days Partly Cloudy	- - - - -	- 6
Maximum Temperature	- - - - -	- 70.5 on March 16.
Minimum Temperature	- - - - -	- 30 on Feb. 24.
Mean Maximum	- - - - -	- 65.78
Mean Minimum	- - - - -	- 38.94

There has been a terrific amount of weather this month. Long soaking rains, repeated time and again, did the parched earth a great deal of good. As a consequence, flood waters in some spots reached unprecedented heights in their forays into fields and highways. Beaver Creek was in flood stage most of the time during the first two weeks of the month. During the eve of March 3, the water reached higher on its banks than residents had seen it since 1920, but that was only a sample for the evening performance, which occurred with a high mark at 9:00 p. m.

For a few hours people living at Montezuma Castle and on Beaver Creek were completely marooned from the outside world, with all approach roads cut off. The road from Flagstaff via the Lakes was closed, as is usual in winter. The approach from Highway 79 via Beaver Creek was rendered impassable by a washed-out bridge approach. The road from Highway 79 via Cornville was blocked by sinking of a bridge span over Oak Creek. The only other approach, which was the road via Camp Verde, was blocked by flood waters of the Verde River pouring over the north approach to the bridge.

Communication with the outside world was restored in two days by repair of the Verde bridge approach, which was passable, although rough, as soon as the waters went down. The road from Cornville is still impassable at this writing, although a few people get in over Oak Creek by a devious route above the damaged bridge. The approach via Beaver Creek was opened up a few days ago by the repair of a bridge. All travel from the Apache Trail was completely blocked for about ten days

MONTEZUMA CASTLE (CONT.)

after the flood as a result of the loss of the west approach to the Verde River Bridge a mile southeast of Camp Verde.

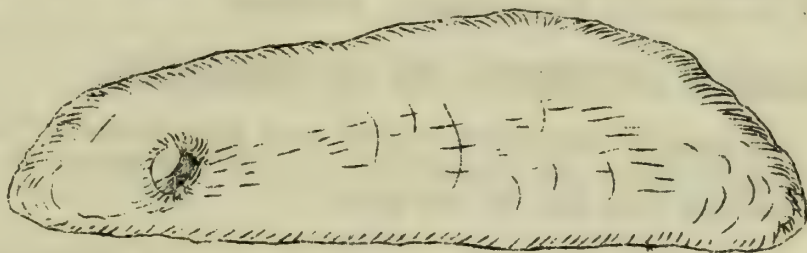
It can be seen that the Verde Valley and the surrounding watershed was thoroughly drenched with rain. Roads in the valley stood up rather well. The roads leading to the Castle from Camp Verde and Beaver Creek, however, were so muddy for a few days that travel over them was dangerous.

Jess Jennings and I obtained an estimate of the flood height on Beaver Creek. At a point opposite his tent house we calculated that the water rose 12 feet above normal. And this was only one of two channels! The other channel carries no water in normal weather, but carried a great deal in this flood.

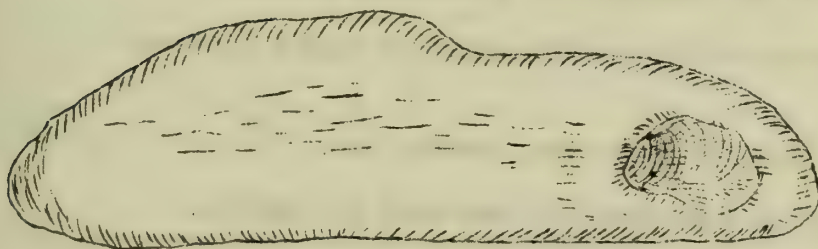
ACCESSIONS

On February 26, Mr. Joe P. Place presented to the museum a peculiar shaped stone which he had found near the Hagerdorne Hill ruin on the Verde River 20 miles from here. If this stone was used by the Indians, as seems probable, the one plane surface was used either as a polisher or pounder. (Attached to this report are sketches of this stone. Suggestions are invited).

Lateral
View



Lateral
View

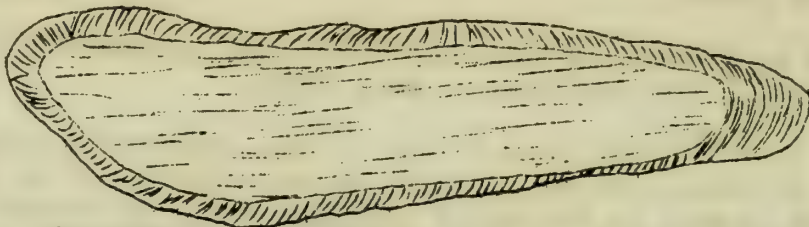


Top View



MONTEZUMA CASTLE (CONT.)

Bottom
View



These sketches are intended to show the general appearance of a stone (apparently quartzitic sandstone) picked up on the west side of the Indian ruin atop Haydorne Hill, near Bridgeport on the Verde River, twenty miles from Montezuma Castle. This river-worn stone, with a natural hole through it, has a smooth bottom side which appears to have been worked. We would very much appreciate any suggestions as to the probable use of the stone by the Indians.

The object was found by Mr. Joe P. Place, of Cottonwood, Arizona, and donated to the museum by him.

PUBLICITY

Evalina Campbell, of Phoenix, gathered material for an article about Montezuma Castle, which she expects to appear in the "Zion Advocate", printed in Independence, Missouri.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

Our pumping plant was worked over this month. The engine was taken apart and a new connecting rod and new piston rings were put in. New leathers were put on the pump.

Our water storage tank was emptied and thoroughly cleaned.

Flood damage to a stone retaining wall near the ranger quarters was repaired.

Drainage ditches to road culverts were cleaned out.

A warning sign regarding dogs and cats was made and set up.

The county maintenance crew ran a blade over our approach road several times, putting the surface in first class condition.

A miniature restoration room model was completed and installed in the museum. This shows a furnished cliff room.

NATURE NOTES

At least three racoons have been prowling up and down the creek ever since the flood.

MONTEZUMA CASTLE (CONT.)

The cottontail rabbits are raising havoc with some rat-tail and prickly pear cactus in the vicinity of the Jennings' tent-house quarters.

On March 11 the Jennings' saw two brown bats, the first this year.

On the same day Jesse Jennings heard a noise under a board at the woodpile and on raising it found between six and a dozen lizards, which scattered in as many directions. Lizards are out in considerable numbers now.

On March 20 Jane Jennings and the H.C.W.P. witnessed an important occasion among the large red ants. At one tent they saw worker ants very actively bustling in and out of their home, each one carrying another ant, completely motionless, in its jaws. These burdens were dumped in the sunshine, and were subjected to considerable stroking and mild pinching by the industrious ones, and finally appeared to come to life, whereupon they became as active as any of the ants. The workers and the sleepers all looked alike. We wonder if the sleepers were young ants, recently hatched, and if they needed some sort of agitation to get their vital functions going. This, if so, would closely parallel the actions of humans in starting babies to breathe by administering a sound thwack to the buttocks with the palm of the hand.

The flood brought out garter snakes in considerable abundance, but most of them hunted up new holes and went again to sleep. However, we see a few of them dozing in the sun now.

On March 22 Jane Jennings heard what she is sure was a rattlesnake, on the sunny side of a rocky slope. She did not linger to investigate.

An interesting illustration of the tenacity of wild animals is afforded by the case of a large rat that lived in a hole in a sycamore tree near the creek. On February 27 this rat was disturbed by rising flood waters which came to the base of the tree. It repeatedly dashed in and out of its nest, running to inspect the water, then running back. The flood abated.

The rat continued to live in the hole, and then the big flood of March 3 came. While the water was rising the rat had ample opportunity to escape from the tree, but it stuck to its post, and finally escape was cut off. The water reached the hole that night. The rat has not been seen since. Talk about home lovers!

Early in the month we received back from Headquarters a number of plant specimens for the herbarium. These had been sent to and identified by Jack Whitehead of the Boyce Thompson Southwest Arboretum. A list of the names follows:

MONTEZUMA CASTLE (CONT.)

Apocynaceae	<u>Amsonia eastwoodii</u> Rydb.
Boraginaceae	<u>Amsinckia intermedia</u> F. and M.
Boraginaceae	<u>Cryptanthus barbigera</u> (A. Gray) Greene.
-----	<u>Wedeliella incarnata</u> (L.) Cockerell.
Berberidaceae	<u>Berberis fremontii</u> Torrey.
Fabaceae	<u>Astragalus diphysus</u> Gray.
Brassicaceae	<u>Sisymbrium irio</u> L.
Brassicaceae	<u>Descurainia halictorum</u> (Cockerell) Schultz.
Brassicaceae	<u>Rosa bursa - pastoris</u> (L.) Britt.
Brassicaceae	<u>Lepidium</u> sp.
Brassicaceae	<u>Draba cuneifolia</u> Nutt.
Capparidaceae	<u>Polanisia trachysperma</u> Torrey and Gray.
Chenopodiaceae	<u>Atriplex conescens</u> (Pursh) Nutt.
-----	<u>Lappula redowski.</u>
Geraniaceae	<u>Erodium cicutarium</u> L. 'Her.

For the report on Birds at Montezuma Castle during the past month, see Betty Jackson's report, attached to this.

GENERAL

Everything has gone all right as regards routine activities, except museum contacts. We have had a high percentage of dudes this month, and a number of Sunday picnickers, both of whom are known to cut our museum contacts. The picnickers usually have been here before. As for the dudes -- well, they are nice people, but as for interesting them in the museum, it can't be done.

Still, I can't see why Castle trips should increase and the museum time decrease. We have found this lack of correlation several times in the past, but were never able to explain it.

Travel is shot all to pieces, as would be expected with most of our approach roads cut off. The interest of the visitors seems only average, instead of high, as might be expected in the case of those hardy ones who came.

It is estimated that flood damage to our revetment wall was about \$500. The revetment is, in general, quite able to withstand another such flood, but about \$500 would be necessary to put it in top condition again and to replace 145 yards of river terrace which was washed away from in front of the museum and near the parking area. Loss of property was limited to two picnic tables and a garbage can.

The need for adequate ranger quarters was vividly brought to mind again by the flood. The ranger tent-house, a temporary structure, was almost flooded out. Water rose to floor level, and undermined a part of the foundation. We joined forces to move all the Jennings' property out of the tent, and it was two days before we felt enough assurance

MONTEZUMA CASTLE (CONT.)

about the weather to move it back. A refrigerator occupied a shed at the front of the tent. It was so heavy we could only move it a foot or so above water level, where we snubbed it to a tree and prayed it wouldn't go. Fortunately, no water reached it.

Our picnic grounds are seeing a lot of use these days. A few nights ago we had our first overnight campers of the year. This brings to mind the approaching summer problem of insufficient camping space. It would be eminently satisfactory if we had permission to locate some restricted camping area somewhere up the creek above the headquarters location. A sizeable party of geology students is coming here in April, and they have written ahead to ask if they may camp here overnight. I had to inform them that we did not have room enough for them. Our limited area at present can accommodate about four parties of campers, if they don't mind being crowded together in a very sociable fashion.

*****SWM*****

BIRDS AT MONTEZUMA CASTLE

By Betty Jackson.

Birds seen on the monument this month were:

Merganser	Say Phoebe
Cactus Woodpecker	Western Mourning Dove
Arizona Cardinal	Sparrow Hawk
Crisal Thrasher	White-rumped(?) Shrike
House Finch	Treganza Blue Heron
Ruby-crowned Kinglet	Baird Bewick Wren
Canyon Wren	Great Horned Owl
Gambel Sparrow	Black Phoebe
Gambel Quail	Junco
Red-shafted Flicker	Townsend Solitaire
Belted Kingfisher	Swallow (Sp.?)
Killdeer	Raven
Cooper Hawk	Red-tailed Hawk
Wren (Sp.?)	

The Say Phoebes came back the morning of March 2. They sat on the telephone line in front of the house singing and discussing whether they'd nest here again this year. Then for several days they argued with a pair of House Finches about which apartment each family would take. As far as I know they haven't yet made up their minds.

The Wrens are starting nests now too. I think our Canyon Wren has settled in a hole in the cliff below the lower ruins. The Baird Bewick Wrens are acting very domestic, but I doubt if they've started a nest yet. And the "Wren Sp." has a nest all built now in a hole in the big sycamore about thirty feet above the ground. Mrs. Wren seems to be starting her eggs the last two days.

BIRDS AT MONTEZUMA CASTLE (CONT.)

I wish someone would help me on this wren problem. Jane has carefully observed the bird, and this is the description: white line over eye, black line through eye or just above it, general brownish tan back and wings, slightly spotted, darker brown tail, quite long and squared at the end, long wren bill, general wren habits such as the up-flipped tail and the jerk before the song.

A pair of Sparrow Hawks started nesting in the same big sycamore on March 16. I was watching on the 15th when I saw the male come screaming to the top of the tree, sit there a minute, dive downward, and then apparently give something to his wife who was sitting on a lower limb. He must have gotten it on his dive. Then they both went off. I asked Jane to watch, and she says they are building right there where the female was sitting, in an old woodpecker hole.

The Black Phoebe seem to be mated, and preparing to nest soon.

On February 26 the first Killdeer was seen, though we heard him last month. On March 20 Jane and I saw a pair of them down the creek at the lower end of the hole below the Castle. They were disturbed, but wouldn't leave the immediate vicinity, so we gathered that they have a nest started, at least.

During the flood rise (February 27 - March 3) many of the birds disappeared. The Cardinal left the side of the creek and spent his time up behind our house. The Say Phoebe arrived during that time, the Mourning Doves, House Finches, and Thrasher moved away from the creek, but the rest just weren't seen. Then on the 5th the quail came joyfully back, and the wrens sang cheerfully and all the others came around again.

On the 6th Jane and Jess saw two Great Horned Owls on the cliff, one on either side of the Castle. I hope we can see their nest this year.

The flickers are getting unpopular now with the other birds. Whenever three or four of them come to a tree, the other birds move out.

The Kingfisher caught fish when the flood first started on the 27th but didn't return till March 11th afterwards. Maybe he doesn't like deep diving.

The Swallow we saw has perfectly even greyish white underparts, and a black line on the under side of his tail.

*****SWM*****

We agree with Earl that when the percentage of local people goes up, the museum time is likely to drop, whereas the field trip time will

MONTEZUMA CASTLE (CONT.)

remain about the same. We are as puzzled as he is about his dudes and have nothing to offer. He has a run of visitors from the winter dude ranches which constitute a distinct type of visitor about whom we are none too well informed. It would be interesting for us all to throw our information on this dude ranch type into a common pot and let some one work it up. If you will all write your experiences and deductions in to headquarters, one of us will try to abstract it and get out a short article for the Supplement. F.P.

*****SWM*****

WALNUT CANYON

By Paul Beaubien, jr. park archeologist, Flagstaff, Arizona.

Visitors this month, 196; total since October 1, 2,209.

Park Service visitors were Herbert Maier, Jack Halle, and Al Keuhl. I accompanied Hugh Miller and party when they inspected sites for a proposed CCC camp, but, because of difficult roads, they did not visit Walnut Canyon.

The site which they deemed most favorable for the camp is about four and a half miles east of Flagstaff, beside the pavement. Electric current and telephone service is immediately available, and a city water main is less than a mile distant. The site is in a good growth of Ponderosa Pines on the south slope of Elden Mountain.

There were several days of rain and snow during the first part of March. The Rio de Flag bridge on the west entrance road washed away, and the road was closed till the evening of March 12. The stream through Walnut Canyon began flowing March 5, and is still carrying a good head.

There was a flock of robins in the yard March 8; there were 68 visitors to the Canyon March 20; and, there were four parties here before 8:00 a. m. today. So I am sure spring has arrived, although I am not positive which date to choose for its arrival.

During the month a few signs were placed on the "wood-hauler" roads leading into the northeast part of the monument; the two entrance signs were given a walnut color and re-lettered in white; and a few minor signs, such as "Dogs and Cats Must Be Kept on Leash", were placed. The road between Sunset Crater and Wupatki was opened March 13 when a fallen tree was removed and ruts were cut through the remaining snow drifts.

I went to Wupatki March 23 and found that 64 visitors had registered at Citadel Pueblo, 40 at Wupatki Pueblo, and 151 at Sunset Crater.

A few hours were spent banding birds. 35 birds were handled:

WALNUT CANYON (CONT.)

	New	Repeats	Returns
Gray-headed Junco	5	0	0
Pink-sided Junco	1	0	0
Red-backed Junco	5	1	0
Shufeldt Junco	5	1	0
Pygmy Nuthatch	0	14	3
	<u>16</u>	<u>16</u>	<u>3</u>

Of course, the real news this month is that a CCC camp is almost certain to arrive. I've been greatly excited about their arrival several other times when the camp did not materialize. This time, I'll restrain my enthusiasm until I can see the whites of their eyes.

*****SWM*****

Paul is right. The important news of the month for him is the chance of his getting a CCC camp. It will probably mean for him a small administration building, a little ruins stabilization, a residence, a water system, and a sewage disposal system. These, in turn, would mean a much better service to the public, a slight increase in visitors at this monument, which would do no harm, and possibly an increase at Wupatki and Sunset Crater, which also would do no harm.--F. P.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian, Moccasin, Arizona.

Visitors this month, 91; total since October 1, 731.

Time surely has gone in a hurry this month and for the life of me I can't think of anything special that has happened to report, other than the regular travel, weather, and bird notes; so my report will be shorter than usual.

Travel for the month has been somewhat less than February, due, I believe, to the roads being washed out and muddy so much, as the weather record will show.

Guided Visitors		Unguided Visitors	
Visitors-	-17	Visitors-	-74
Parties -	8	Parties -	-18
Average persons to party-	2	Average persons to party-	4.2
Total minutes of visitors -	160	Total minutes of party -	-1133
Minutes per party -	-20	Minutes per party -	-63.3

There have been three picnic parties this month from Moccasin; one was the district school down to cook supper, and the other two were young folks for chicken roasts.

PIPE SPRING (CONT.)

The bird banding has not been carried on as steadily as last month because of storms and because I was away last week to headquarters. But I have banded the following:

<u>New</u>	<u>March</u>	<u>Previous</u>	<u>Totals</u>
Gambel Sparrow- - - - -	27	280	307
Song Sparrow- - - - -	8	21	29
<u>Repeats</u>			
Gambel Sparrow- - - - -	74	311	385
Song Sparrow- - - - -	6	39	45

I have had returns to date since the fall trapping, ten Gambel Sparrows. As yet I have not all my records up to date and will try to include a more detailed account on the birds in my next report.

Weather has been as follows: days clear, 4; stormy and cloudy, 13; partly cloudy, six. Five days unrecorded while I was away from the monument March 14 to 19.

During the month we have had some very heavy rains and a lot of moisture fell. This caused the snow to come out of the mountains and kept the roads closed by taking out bridges and culverts as well, and keeping them so muddy no one traveled unless he had to. Some reports say that there was some three or four inches of rainfall in February.

I believe we are going to have an ideal spring and a lot of wild flowers. These should be early as there are hundreds of plants coming up now, and the earliest ones are blooming. I would like to get Natt Dodge and Jack Whitehead up here when the cacti are in bloom. Will let you know later when I think this will be.

I might say that we arrived home safely from our five day trip to headquarters and back, driving the old three-quarter ton Dodge dump truck to be used by the CCC on monument projects when needed. I surely enjoyed my visit and only wish that it was possible to make them often, for it helps a lot to come in contact with you and the rest of the gang, in carrying on at these lone posts. It gives one new courage and determination to hit the ball.

Following is my account of the time I was away from the monument to headquarters and back March 14 to March 19.

March 14

The truck was made ready to go on the 12th, with the exception of throwing in my bed and grub box. Due to the continual storms on the 12th and 13th, I had about decided to put off the trip till some other date, but as the weather cleared in the night and the ground froze so

PIPE SPRING (CONT.)

that it would hold up a car, I decided to make a trial at getting over the mud and Buckskin Mountain. So I called Jacob Lake and was told that the road was open there, then I called the CCC camp and a crew of boys were out fixing the Cottonwood Wash so that I would be able to get across by 11:00 a. m.

Hustling to get my things together and loading them in, along with 40 gallons of extra gas, I left Moccasin at 10:30 with Mrs. Heaton for company.

As there was no speedometer on the truck I will take the road map mileage for distance traveled, or the mileage of the truck that I drive back.

After two hours of driving, we arrived in Fredonia, 15 miles, going through mud and ruts, as well as having the gas line stop up when we were in the largest mud hole. Stopped at the Fredonia Garage to have the gas line cleaned. Leaving at 1:00 p. m., going was good all the rest of the way and we arrived at the Navajo Bridge at 5:00 p. m. where we ran out of gas. After crossing the river, we ran into road construction which is, when finished, will be oiled from the Navajo Bridge to Cameron. This will make an oiled highway of U. S. 89 from Jacob Lake south through Arizona. There still remains a strip of road from Fredonia to Jacob Lake to be oiled.

We arrived at Cameron at 9:15 p. m., after having a lot of carburetor trouble, or rather a lot of water in the gas which I had to drain out every two or three miles, until some one or two gallons of gas and water were drained out. After that no further trouble was experienced.

March 15

We spent the night camping out at Cameron, after putting in 12 gallons of gas and two quarts of oil. Broke camp at 7:15 and drove steadily until 11:45 when we made a stop for lunch. We arrived in Prescott about 3:00 p. m. where I purchased eight gallons of gas, as I figured from the way that the truck took gas the first hundred miles I would run out before we got into headquarters. No other stop was made en route until we arrived at Chandler. Here we purchased some things to eat, driving in to Casa Grande at 10:35 p. m. and made our bed down in the camp ground area.

March 16

Figured up that I used about 50 gallons of gas and five quarts of oil on the trip down. Turned the old Dodge truck over to Al Bicknell who is in charge of equipment, and he in turn showed me the Dodge truck that I drove back. He had it all ready to go.

PIPE SPRING (CONT.)

The forenoon was spent in visiting and discussing monument problems with the Boss, Hugh, Dale, Natt, Parke, and some of the other headquarters staff. The afternoon Natt Dodge took Mrs. Heaton and me to Tuma-cacori to see the place and to bring back Charley and Mary Steen for a lecture that evening, given by Jack Whitehead, on the desert plant life of the Sonoran Desert. We all enjoyed this interesting talk and the pictures very much.

March 17

The forenoon was spent in finished up, getting things loaded in the dump truck, winding up my problems, and getting all the information and instructions that I wanted to help carry on at Pipe Springs.

It surely helps to make a fellow's load seem lighter to mingle with the gang at headquarters and get their idea of different problems that come up at the various monuments.

After having lunch with the Boss and Mother Pinkley, we pulled out for home at 1:30 in the Dodge dump truck which is to be turned over to the JCC and to be used on the monument when I want it. We filled the gas tank and carried 54 gallons of extra gas. The speedometer reading was 96,196.

We stopped in Phoenix for four hours to do some shopping and take in a show, then pulled on out on the road some 40 miles and made camp in the desert at 10:00 p. m.

March 18

We broke camp at 7:30, keeping a steady pace of about 40 miles per hour all day. We stopped in Prescott for about an hour looking around and stretching ourselves. Made a short stop in Flagstaff, then on to the Navajo Bridge for supper at 8:00 p. m. Here I replenished the gas and oil. After about half an hour's stop we decided to go on, as it looked stormy out west, so headed for home and arrived at 12:30 a. m. on the 19th, very tired and happy that we had the opportunity of such a visit with you at headquarters.

March 19

I unloaded the personal belongings and got the truck ready to turn over to the Camp Superintendent this morning. Found in checking up that the speedometer registered 510 miles from headquarters and that I used about 47 gallons of gas and 6 quarts of oil.

At 11:00 a. m. I took the truck down to the ECW garage and turned it over to the Head Mechanic, as the Superintendent was not in.

In figuring up the traveling hours, I find that we spent twenty-four hours and ten minutes going down and twenty-two hours coming back, averaging twenty-two and one-half miles per hour, for driving time, on the entire trip. This is going back to the olden days of the dirt roads for speed.

*****SW*****

We at headquarters certainly enjoyed the little visit with Leonard and Mrs. Heaton. Leonard had a grand time absorbing information and methods of operation and went home with several new ideas. Mrs. Heaton's principal difficulty was in convincing some of our folks that she was the mother of six youngsters running from eleven years down--she with that scholastic youthfulness.--D P

*****SW*****



HEADQUARTERS

WORK ACCOMPLISHED BY THE GENERAL MECHANIC

Gene has put our rolling equipment through another month without any serious trouble. No doubt this is due to catching the small jobs in time to prevent trouble, also the regular greasing helps. The appearance of the cars was improved by washing and polishing.

A trip was made to Tumacacori to get the Model A Ford USDI 1813. New brakes and tires have been installed on this pickup and 17 hours of labor spent on repair work. Gene seems to think that it will out live some of our newer cars.

The roving ranger's car is in the shop for a general overhaul. It has been torn down and the engine is now in the process of being rebuilt. The block has been rebored and the job is about 50 per cent complete.

Other work accomplished on our cars and trucks includes: finishing the body and fender work on USDI 13771; overhauling and setting governor and repairing carburetor on USDI 8116; making and installing tie-down hooks and shovel carrier for Davy's pickup, USDI 13915; and straightening and welding fenders on USDI 1805, and 8113. A few dents were taken out of the fenders of 13916.

In cooperation with the CCC camp, the water pumps and generator were repaired on USDI 10369; new cylinder head replaced on USDI 11200; governor repaired and checked on Dodge truck No. 12329, the concrete mixer checked and tightened; and flashings cut for the new shop. Work other than that on motor equipment includes: repairing gasoline pump for Tumacacori; working on doors in the Boss' quarters and the screen door for the Custodian's office; making guard and repairing drinking fountain; fixing the vacuum cleaner; as a safety measure, rewiring in the bachelors' quarters; repairing lights and removing water pipes from Park Naturalist's quarters and installing the Norge refrigerator at the CCC camp in place of the General Electric in order to work on a cooling system for the drinking fountain.

*****SWM*****

BRANCH OF EDUCATION

By Dale S. King,
park naturalist.

During the month of March, the Educational Staff consisted of Park Naturalist King, Junior Park Naturalist Dodge, and a CCC enrollee. Junior Archeologist Charlie Steen continued on his temporary relief assignment at Tumacacori National Monument where he has been on public contact duty. Park Naturalist King returned from his annual leave

BRANCH OF EDUCATION (CONT.)

March 3.

Following is a resume of the time devoted by the Branch of Education personnel to various projects:

	King - Steen - Dodge - CCC			
	Days			
<u>General Office Work</u>				
Correspondence (King 141 letters;Dodge 25).7	0	1	0	
Conferences and discussion				
With Headquarters Staff1	0	1/4	0	
With visiting scientists and technicians. 1/2	0	0	0	
With personnel.1	0	1-1/2	0	
Library (file, issue publications, etc.). . 1/4	0	0	0	
Reports				
Compiling and processing monthly report . 1/4	0	6	7	
To Washington Office. 1/2	0	1/2	0	
To Region III Office.0	0	0	0	
Miscellaneous1-1/4	0	1/4	0	
Publicity				
Compiling and processing informational and publicity material.0	0	1/4	1-1/2	
Check Region III publicity releases . . 0	0	0	0	
Miscellaneous				
Construction (painting, carpenter work, etc.)0	0	1/4	1	
Wrapping and mailing supplies and mater- ial requested 1/4	0	0	0	
Clean-up work0	0	1/2	1/2	
<u>Research and Education</u>				
Public Contact				
Preparation and delivery of outside lec- tures0	0	1	0	
Relief Guide Duty at monuments.0	23	0	0	
Office visitors (informational) 1/2	0	0	0	
Museum and Nature Trails				
Acquire and prepare specimens0	0	0	0	
Acquire equipment and supplies.0	0	0	0	
Planning (Bandelier).0	0	1	0	
Arboretum preparation and planting. . . .2-3/4	0	3	8	
Visual Education				
Slide Library work.0	0	0	0	
Photography				
File prints and negatives0	0	0	0	
Taking and processing photos.0	0	0	0	
CCC Side Camp educational program1-1/4	0	0	0	
Faunal observations and bird banding. . . 1/4	0	1-1/4	2	
Ruins stabilization project administration.0	0	0	0	

BRANCH OF EDUCATION (CONT.)

Mobile Unit . . . . .	.1	0	0	0
Antiquities funds . . . . .	.1-1/2	0	0	0
Aztec Ruins	1/2	0	0	0
Southwestern Monuments Association. . .	.1-1/4	0	0	0

Field

Field Trips (Western Museum Laboratories)	.0	0	8	0
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Leave

Annual.3-1/2	0	0	0
TOTAL23	23	24	20

SOUTHWESTERN MONUMENTS LOAN LIBRARY

Loan and return records were kept up to date, but no time was available for cataloging. A CCC clerk, loaned from the administrative office, in three days made accession cards for and numbered 224 books. These titles will appear in a future Supplement of the Monthly Report, so that field men can order the books from the library.

New publications received during the month consisted of two books, 21 periodicals, 65 pamphlets, four reprints, and 31 maps.

A considerable number of books were ordered from various sources, particular stress being laid upon books which could be obtained free of charge, a procedure made necessary by the exhaustion of our book allotment.

In answer to a request from the Washington Office, relayed from the Region Three Office, a list of reports bearing on the archeological and historical areas in the Southwestern Monuments was prepared.

GENERAL OFFICE WORK

In order to organize efficiently the work for the remainder of the fiscal year, a priority list of projects now under way was prepared by the staff. This consisted of projects which have been instituted, have been asked for by the field, or should be finished by the end of the fiscal year. An estimate of the stupendous task was reached when it was found that the 99 projects added up to an estimated total of 1,174 man days. Counting 92 working days from the first of March until June 30 for each of the two naturalists, and 85 working days for the CCC boy, we would have only a total of 269 man days to accomplish 1,174 man days of work. Theoretically, the naturalist office should be enlarged 4.3 times to cope with the situation.

Considerable time during the month was spent in preparing a list of needed naturalist equipment to be bought before the end of the fiscal year. This consisted mainly of book cases for the library, filing

BRANCH OF EDUCATION (CONT.)

cabinets for the library and the office, and museum preparation equipment. Present indications are that our funds will be insufficient to obtain all needed supplies.

PUBLICITY

Several hours were spent correcting erroneous articles which had appeared in various publications concerning the national monuments of the Southwest. These were articles in publications from other parts of the country whose staffs apparently had no access to National Park Service information.

In response to a request for ethnological progress in the monuments from W. W. Hill of the University of New Mexico, a statement of ethnological progress in the Southwestern Monuments during the last year was prepared for the "New Mexico Anthropologist".

In answer to a request from Dr. Emil Haury, at the University of Arizona, a resume of interesting archeological items was prepared for possible inclusion in future issues of "American Antiquity".

Processed material run off during the month consisted of 300 copies of educational form 8320, newly required by the Washington Office, and 50 copies of an article bearing on the identification of Juncos in bird banding operations.

OFFICE VISITORS

Visiting scientists, artists, and technicians included: W. Langdon Kihn, artist for the National Geographic Society; Fred G. Steenberg, author of the recent Supplement article concerning an early visit to Montezuma Castle; Erik Douglas, Director of the Department of Indian Art in the Denver Art Museum; Dr. Thomas Barbour, famous herpetologist of the Peabody Museum of Harvard University; Dr. Wiggins, noted botanist, Stanford University.

National Park Service visitors to this office were William Leicht; Thomas Onstott; Charlie R. Steen; and Leonard Heaton.

MUSEUM AND NATURE TRAILS

Junior Naturalist Dodge spent 8 days transporting two dioramas and other material from the Western Museum Laboratories to Tumacacori National Monument. These very beautiful and expensive exhibits arrived safely, a total of 15 minutes being necessary to repair one or two tiny casualties in one of the dioramas. With shipping of exhibits to Tumacacori already started, we have high hopes that the museum there will be open to the public sometime early in the summer.

BRANCH OF EDUCATION (CONT.)

In answer to a questionnaire by Park Naturalist Stupka of Great Smoky Mountains National Park, a summary of his experience in nature trails was prepared by Junior Park Naturalist Paul Beaubien at Walnut Canyon National Monument. His answers include observations on Walnut Canyon and Saguaro, and will appear in a future issue of the Monthly Report Supplement.

Considerable progress was made in accumulating a planting list to restore the old gardens at Tumacacori National Monument. The planting list used at La Purisima Mission, California, was obtained from Region Four, and transmitted to the landscape architects of Region Three. Arrangements were made toward shipping several species of plants available for transfer from La Purisima.

A memorandum to the Director concerning the great need of the Southwestern Monuments for a permanent, efficient museum laboratory was prepared, stating that it was our feeling that the Western Museum Laboratories at Berkeley should be put on a permanent Civil Service basis, and that its staff be expanded to include skilled artists, preparators, technicians, and researchers, to satisfy the increasing needs of the Western National Parks and Monuments.

The small museum space available at Tonto National Monument was studied in an effort to increase that monument's attractiveness to visitors. A list of work projects was drawn up involving the demolition of the partition wall between the present quarters and the museum, thus making all the space available for exhibits. It is proposed that a tent house be constructed for the ranger stationed there.

ACCESSIONS

- 1 study skin, House Finch.
- 1 study skin, Park-Bunting.
- 250 small metal standards for museum labels.
- 11 drafting tables for reissue to the field.
- 1 lantern slide cabinet.
- 1 lantern slide carrying case.
- 50 tar-paper boxes for nursery planting.

ARBORETUM PLANTING

With the aid of CCC enrollees from the Casa Grande Side camp, approximately 360 native plants were set out in the residence quadrangle. If the experiment is successful, this planting should serve as an arboretum for botanically minded visitors, as well as landscaping for the buildings. All work done so far is of a temporary nature, pending approval of plans which will be submitted to the Regional Landscape Architect in the near future.

BRANCH OF EDUCATION (CONT.)

Plants were: 10 Lycium breviceps, 50 Sacaton Grass, 200 Desert Broom, and 100 Desert Hackberries, all native to this region.

CCC SIDE CAMP EDUCATIONAL PROGRAM

Approximately one and one-fourth days were allotted to the preparation of educational reports of the classes held by Headquarters personnel for the CCC side camp enrollees. Some of these reports served for the bases for certificates of proficiency which will be awarded to certain enrollees upon their resignation from the CCC at the end of the period.

FAUNA

Steps were taken to obtain a biological collection permit for one of the members of the staff in view of future expansion of our study collections. Some correspondence was entered into with bird banders in various parts of the Southwest and West who are working on species trapped at our stations. This should result in cooperation between the banders and increased knowledge.

BIRD BANDING RECORDS FOR MARCH (Feb. 26 to March 25, inclusive).

<u>Species</u>	<u>New</u>	<u>Repeats</u>	<u>Returns</u>
Bluebird, Chestnut-backed.	2	3	0
Dove, Rock	1	0	0
Dove, Western Mourning	2	0	0
Finch, House	27	14	1
*Junco, Oregon.	2	1	0
Phoebe, So.	1	0	0
Quail, Gambel.	3	23	0
Sparrow, Gambel.	42	95	5
*Sparrow, Black-throated Desert	1	0	0
Wren, Cactus	0	1	1
TOTAL	81	137	7

*First banding record of this species for Casa Grande National Monument.

Following last month's report that 50 House Finches captured at Casa Grande were taken to Tucson and released on February 25, a thorough combing of the ramadas on March 5 failed to indicate that a single bird had returned. A second expedition to the ramadas on April 1 netted a total of only two finches, neither of which were among the group taken to Tucson. Between March 5 and April 1, the finches left their winter perches beneath the ramadas. One pair of finches is nesting among the steel superstructure beams of the Casa Grande shelter.

Plumage changes among Gambel Sparrows are noted, individuals repeating late in March showing adult plumage whereas the same birds

BRANCH OF EDUCATION (CONT.)

captured a month earlier were recorded as immatures.

One Oregon Junco observed on the monument and two banded by John Fast at Vah-ki Inn constitute a new record for the Casa Grande. This, together with the Chestnut-backed Bluebirds and the Black-throated Desert Sparrow, adds very valuable information to our knowledge of the birds visiting this area.

RUINS STABILIZATION

Approximately one day was spent in working up job outlines and projects for proposed WPA crews at various monuments. Difficulties in the administrative set-up, however, made a WPA program in the Southwestern Monuments inadvisable at this time.

Some attempt was made to make current the archaeological files at Tonto and Casa Grande National Monuments. Several archaeological notes which have accumulated on desks were dictated and filed in proper form.

Initial steps were taken to gather information which will result in submission of a supplementary job application for wall repair at Aztec Ruins National Monument.

*****SWM*****

MOBILE UNIT

By Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

With the addled condition of the climate hereabouts, no one can rightly remember whether or not March came in like a lion or a lamb, but I am certain that it has been going around and around like a whirling dervish since its arrival. Even the weather itself is all mixed up about what March weather should be like. One day we have a shirt-sleeve climate and the next the wind comes up and whips the mortar right off the boys' trowels before they can get it down on the wall. Mr. Read says that he is quite happy over having brought his heaviest overcoat and mittens to the Chaco. All that he now lacks, to be completely equipped, is an anchor. He is down at Kinklizin and the poor fellows there are getting the worst of it. The ruin is more exposed than any here between the canyon walls and most of the work has been done from a scaffold.

You no doubt remember the large triangular hole in the west side of the two story kiva there at Kinklizin. In trying to estimate how fast a hole in the center of the wall like that develops, I hunted through a lot of the State Museum's old Chaco Canyon pictures. In the collection were some of Kinklizin taken twenty years ago by Wesley Bradfield. I was surprised to find that they do not show as rapid a breakdown as I had expected. True, the hole has enlarged some, particularly upward, and a large portion on the northwest curve has fallen,

MOBILE UNIT (CONT.)

but even twenty years ago Kinklizin appeared to be in no insurable condition. However, these walls where they are not kept continually damp are much more durable than they appear to be. Homer Hastings wrote down this winter to know if the second story of Kin Klizin had fallen, as he did not expect it to last through the winter.

A photograph in "Art and Archaeology" for February, 1921, page 15, shows this break clearly and also the fallen veneer to the right of the break. The photograph is erroneously labeled "Tsia Kletzin".

In the same collection of photographs mentioned above, are some good views of Pintada. I think I can possibly get permission to re-photograph some of these old prints. These, compared with some we can take from the same point, will give us some check on deterioration over a twenty year period. In this connection I think we should be able to get together with Lule sometime and work out a standardized method of keeping a long range check on the Chaco sites. It needn't be elaborate nor require an instrument for checking on it if set in operation. Its essentials might consist of a single ground plan for room identification only, a base point set inconspicuously in each room without necessarily having to tie in to those in other rooms, and a profile sheet for each room showing wall heights and the condition of all openings. Somewhere on each sheet there could be a space for noting general wall conditions. These would not take the place of the HABS drawings, but such drawings on any or all of our Chaco sites are a long way off and simple profiles of the sites would be invaluable to anyone doing repair or stabilization work twenty years from now. Here at Bando we find that Pepper gives the heights of room walls in many instances, but it is impossible to determine from what point these measurements were taken.

The large break in the second story kiva at Kinklizin has been repaired; ten cubic yards of masonry were laid. In addition to this, support work was done on an isolated column of this kiva on the south-east curve where two and one-half square yards of masonry are laid to date. We have been waiting for calmer days to complete work on this masonry spine. On the minor room walls, 13 square yards have been laid in repairing veneer. Where this new work rises to the top of a wall for any considerable distance it will be capped with stabilized mortar. Also under way at Kin Klizin are repairs to the bench. With the debris cleared away, this bench has turned out to be a pretty complex affair. It has three step-backs from the lowest part of it that is visible to the top.

On a small rock laid in the masonry of the first room north of the kiva, Mr. Read found what appears to be the date 1886. There also seems to be something written on the stone just under the date, but neither of us could make it out. We were going to chalk it in, but couldn't tell where to start, as all the scratches are indistinct.

MOBILE UNIT (CONT.)

Here at Bonito we are still working on the south tier of rooms on the west side. This is surely slow work, much slower than on the east side where the masonry is of the hard, fine-grained stone that can be picked up from the ruin dumps. Over here on the west side, we have the rock that was apparently taken from the face of the cliffs directly behind the site. This stone is soft and porous and we can't go out and find any usable pieces in the excavation dumps as we could for the other stone. This stuff has all weathered until most of it round or egg-shaped, so we have to quarry and shape fresh blocks. It takes time to give it the appearance of the original work without having it covered with rough stone-hammer marks. On these rooms, 131 to 139 inclusive, and 341 to 344 inclusive, we have laid 61 yards of masonry repair and over 100 yards of stabilized capping.

On the east side of the plaza, room 258 was finished. Here six cubic yards were laid in a support job and the finished work capped. Two doorways in the same room were repaired.

The water situation for this spring and summer here in the canyon does not look any too promising. The University has been crowded for water of late and is contemplating digging a new well. Mr. Tenner said yesterday that his well at the post was going lower daily. So far, we are the only ones who aren't having to wonder what we'll do for water this summer.

I don't know if Max reported it, but on March 22 we had the first plane land at the canyon that I know of. Two boys from Denver ran out of gas over the canyon and came down in the gap just outside the monument fence. This was such a treat to see an airplane that I drove out and brought them in to the post where they got a barrel of the garden variety of gas.

*****SWM*****

We heartily approve of Gordon's idea of keeping a long range check on the Chaco sites. As he points out, HABS drawings of the thousands of rooms in the Chaco Canyon National Monument are a long way in the future and we should have some faster method of recording their present condition. Photography is a fast and fairly cheap way of recording conditions from year to year, but it would take 6,000 or 7,000 carefully taken photographs to go once over the job, and we have never had the men or money for that purpose.

Speaking of that south tier of rooms at Bonito: you have probably found it out, Gordon, as we did several years ago, that the part of the front wall of that pueblo fell face out and is lying covered with debris. We worked a little of the ground in some minor repairs there several years ago but there must be a lot of wall material left.--F. P.

*****SWM*****

VISITOR STATISTICS AND EDUCATIONAL CONTACTS

By The Boss.

As nearly as we can get the figures, we had 16,159 visitors for the month of March as against 19,345 for March last year, and 20,224 for the month of February, 1938.

The fall in the number of visitors last month at Tumacacori, Casa Grande, and Montezuma Castle, where a very careful check on visitors is made, is a very good indication that middle and southern Arizona do not have as many winter visitors as a year ago.

With the 16,159 visitors, we made 11,049 educational contacts (many persons being contacted more than once) and did not reach 8,214 visitors at all. This latter figure looks bad, but we might explain that over 5,000 of those visitors came to two of our monuments where educational contacts are, perhaps, least necessary, Saguaro and White Sands.

We gave 1,221 field trips to 7,237 visitors, the average party being made up of 5.9 persons. The average time of each trip was 36.2 minutes, up a couple of minutes from the previous month. The slight increase in the average trip is probably partly accounted for by the decrease in number of visitors and trips from the previous month, allowing our men to extend the time per party.

We gave 499 talks to museum parties, the average party being made up of 7.6 persons and the talk lasting on the average 23.5 minutes. Here, again, the average party is slightly larger than last month and the talk is a couple of minutes longer.

At Aztec, where we should obtain a theoretical 200 per cent contact, Carroll was able to obtain 180 per cent, which is a very high figure for a man who was working most of the month alone. At Casa Grande, where we should obtain 200 per cent, we actually made 161 per cent contact. At Montezuma Castle, where we should obtain 200 per cent we reached 113 per cent which, considering the climb of 80 feet of ladders on the Castle field trip which stops the aged, crippled, and heart cases, is doing as well; comparatively, as the other monuments. At Gran Quivira, George reports 100 per cent contact, which means, and this is borne out by the guide initials on SWM 16, that Mrs. Boudney helped out many times during the month while George was away for mail, supplies, etc. It might also be noted that Milton obtained 100 per cent contact on the two visitors who came to Navajo National Monument last month. The winter job at Navajo, however, does not contemplate any visitors at all, so he had two more than we expected.

*****SWM*****

VISITOR STATISTICS FOR MARCH, 1938
SOUTHWESTERN MONUMENTS

MONUMENT	EMPLOYEES		FIELD TRIPS				MUSEUM TALKS				Unattended		Total Informational Contact		Total Travel	Per cent Contact
	Per.	Temp.	No.	Att'd	Time	Av.	Av.	No.	Att'd	Time	Av.	Av.				
Arches	1	--	--	--	--	--	--	--	--	--	--	--	150	--	150	
Aztec	1	--	102	810	3580	8.0	35.0	107	857	2680	8.0	25.0	46	1667	926	180
Bandelier	2	3	34	104	2407	3.0	73.3	29	101	500	3.4	17.2	296	205	400	51
Canyon de Chelly	1	--	4	16	210	4.0	52.2	--	--	--	--	--	11	16	27	
Capulin Mountain	1	--	2	60	360	30.0	180	--	--	--	--	--		60	600	
Casa Grande	1	4	335	2353	13303	8.9	36.2	199	2330	4202	11.7	21.1	300	5325	3295	161
Chaco Canyon	1	--	17	77	1475	4.5	86.7	13	57	385	4.4	29.6	361	134	391	
Chiricahua	1	3	80	390	4465	4.8	35.8	--	--	--	--	--	57	390	547	
El Morro	1	--	7	32	450	3.1	64.3	3	8	775	2.6	258.3	9	30	34	
Gila Cliff	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gran Quivira	1	--	52	224	4080	4.3	78.4	--	--	--	--	--	--	224	224	100
Hovenweep	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Montezuma Castle	2	--	76	260	4600	2.9	60.5	61	182	1368	2.9	22.4	142	442	380	116
Natural Bridges	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Navajo	2	--	1	2	120	2.0	120	--	--	--	--	--	--	2	2	
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	700	--	700	
Pipe Spring	1	--	8	17	160	1.9	20.0	--	--	--	--	--	74	17	91	
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Saguaro	--	--	--	--	--	--	--	--	--	--	--	--	3000	--	3000	
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	--	151	--	151	
Tonto	--	1	73	312	2360	4.0	36.4	42	156	714	3.7	17.0	326	468	612	77
Tumacacori	2	--	202	1156	6005	6.9	29.7	--	--	--	--	--	251	1156	1407	82
Walnut Canyon	1	--	11	31	180	2.8	16.3	45	121	1115	2.6	24.7	75	152	196	77
White Sands	3	--	212	761	1115	3.5	5.2	--	--	--	--	--	2201	761	2962	
Wupatki	1	--	--	--	--	--	--	--	--	--	--	--	64	--	64	
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
TOTAL	24	11	1221	7237	44314	5.9	36.2	499	3812	11739	7.6	23.5	8214	11049	16159	67.7
Last Month	22	10	1511	8465	52381	5.6	34.6	692	4469	15148	6.4	21.8	11734	12934	20224	63.0

VISITOR STATISTICS AND EDUCATIONAL CONTACTS (CONT.)

If you will look it up in last month's report, you will see that we were quite puzzled because the traveling public had suddenly stepped up and for some reason were in a hurry. This past month the travelers have changed and have slowed down. At least, these statements seem true at Casa Grande where we are conducting some experiments and keeping pretty accurate figures.

The following table shows individual guide figures for the month:

	Days Worked	Parties		Time		No. Visitors		No. of $\frac{1}{2}$ trips per day
		Ruins	Museum	Ruins	Museum	Ruins	Museum	
Rodgers	21	94	55	3521	1259	826	703	7.0
Coyle	21	98	50	3489	1096	929	744	7.2
Savage	20	97	36	3033	742	819	475	7.1
Jones	24	39	36	1760	388	332	288	3.1
Bicknell	8	7	7	351	216	89	119	1.7

Last month we worked 102 man-days giving 800 trips while this month we worked 94 man-days, giving 534 field and museum trips. Jones and Bicknell were busy with other duties and did not work full time with visitors. Of the three CCC boys, Rodgers and Coyle are the older men on the job; Savage is the new man. Notice that the new man takes as many ruins parties but is yet unable to talk to them as long, his total ruins time being 3,000 minutes as against 3,490 and 3,500 for the other men. He does not make as many museum talks and his museum time is down. This is in line with some of our other studies and observations; a new man picks up the field trip work much faster than the museum work.

The average trip time for the various guides is as follows:

	Ruins		Museum		Total	
	March	Feb.	March	Feb.	March	Feb.
Rodgers	37.4	34.6	22.8	20.3	60.2	54.9
Coyle	35.6	33.0	19.9	19.4	55.5	52.4
Savage	31.3	28.7	16.1	17.5	47.4	46.2
Jones	45.1	44.6	24.6	25.7	69.7	70.3
Bicknell	50.1	43.6	30.8	24.8	80.9	68.4
TOTAL	36.2	33.7	21.1	20.1	57.3	53.8

Not only do we have the comparison of trip time between guides, but we have the trip time of each guide for the months of February and March.

Bicknell and Jones were working under abnormal conditions. They were helping out on peak loads and pinch hitting at meal hours so their time is to be considered as exceptional. Of the three CCC boys who are working under normal conditions, note the gain of all three in the field trips from February to March. In the museum talks, one guide gains a

VISITOR STATISTICS AND EDUCATIONAL CONTACTS (CONT.)

couple of minutes, one gains a fraction of a minute and one loses a little over a minute. The total trip, both ruins and museum, shows a gain for each of the three men, 5.3, 3.1, and 1.8 minutes respectively.

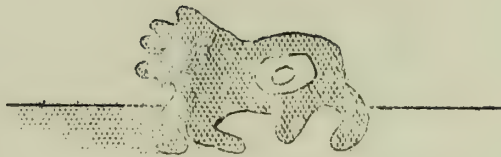
The inference is that the public was willing to spend a little more time and the boys held their parties a little longer according to their respective abilities.

Why should the visitors spend more time with us in January, speed up in February, and then slow down again in March? Al says it was due to a number of rodeos in February which brought visitors past in that month who were bound some place else and so cut their time at his museum, whereas in January and March that factor did not enter, his visitors were bound for Casa Grande as the principal point of the visit and were willing to stay a little longer.

He may be right.

Anyway, they did!

*****SWM*****



PERSONNEL NOTES

As we go to press, instructions are out to move Charlie and Mary Steen back to headquarters from Tumacacori where they have been pinch-hitting for the past few months.

Louis Caywood is back from his operation and is feeling fine.

Bina Bicknell has gone to the coast and Al. is beginning to lose weight on his own cooking.

As we close this report, Jesse and Jane Jennings are leaving Montezuma Castle for their new job at Okmulgee. Edwin Alberts, who has served several seasons at Petrified Forest as a temporary, will replace Jesse at the Castle; there being no Mrs. Alberts makes Jane a net loss to the organization.

Bill Leicht, who has been former service at Grand Canyon, replaces Milton Vetherill and becomes the first permanent ranger at Navajo National Monument.

Don Erskine writes that he likes very much his new work over at Boulder Dam. Papers are going through on a new man to replace Don at Casa Grande. More about him next month.

Papers are also going through on all temporary jobs and on the Aztec and Tumacacori permanent jobs so it looks as if we may get all of our positions filled by May 1. More about these next month.



My name is Marilyn Grace
Born March 17, 1938
Weight 17# - 7oz
My Parents Bob & Marie Rose

THE Supplement



MONTHLY REPORT

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CHECK LIST OF BIRDS OF CASA GRANDE NATIONAL MONUMENT

In response to several requests that we publish a check list of birds of Casa Grande National Monument, the following is presented. This is based on a check list submitted to the District Office on January 10, 1935. Species recorded since that date are designated by an asterisk (*).

*Blackbird, Red-wing	<u>Agelaius phoeniceus</u> ssp.
Blackbird, Yellow-headed	<u>Xanthocephalus xanthocephalus</u> (Bonaparte).
*Bluebird, Chestnut-backed	<u>Sialia mexicana</u> <u>beardi</u> Ridgway.
*Bunting, Lark	<u>Calamospiza melanocorys</u> Stejneger.
Cardinal, Arizona	<u>Richmondia cardinalis</u> <u>superba</u> Ridgway.
Crane, Little Brown	<u>Crus canadensis</u> <u>canadensis</u> (Linnaeus).
*Dove, Inca	<u>Scardafella inca</u> (Lesson).
Dove, Western Mourning	<u>Zenaidura macroura</u> <u>marginella</u> (Woodhouse).
Duck, Mallard	<u>Anas platyrhynchos</u> <u>platyrhynchos</u> Linnaeus.
Eagle, Bald	<u>Haliaeetus leucoccephalus</u> <u>leucocephalus</u> (Linnaeus).
Finch, House	<u>Carpodacus mexicanus</u> <u>frontalis</u> (Say).
Flicker, Gilded	<u>Colaptes chrysoides</u> .
Flicker, Red-shafted	<u>Colaptes cafer</u> <u>collaris</u> Vigors.
Flycatcher, Arizona Crested	<u>Myiarchus magister</u> <u>magister</u> Ridgway.
Catcatcher, Plumbeous	<u>Poliophtila plumbea</u> <u>plumbea</u> (Baird).
*Hawk, Harris	<u>Parabuteo unicinctus</u> <u>harrisi</u> (Audubon).
Hawk, Desert Sparrow	<u>Falco sparverius</u> <u>phalaena</u> (Lesson).
*Junco, Black-headed	<u>Junco oreganus</u> ssp.
*Killdeer	<u>Capreolus vociferans</u> <u>vociferans</u> Linnaeus.
*Meadowlark, Western	<u>Sturnella neglecta</u> <u>neglecta</u> Audubon.
Mockingbird, Western	<u>Mimus polyglottos</u> <u>leucopterus</u> (Vigors).
Nighthawk, Texas	<u>Chordeiles</u> <u>antipennis</u> <u>texensis</u> Lawrence.
(wl, Pallid Horned	<u>Bubo virginianus</u> <u>pallascens</u> Stone.
*owl, Burrowing	<u>Speotyto cucularis</u> <u>hypogaea</u> (Bonaparte).
Phainopepla	<u>Phainopepla nitens</u> (Swainson).
Phoebe, Black	<u>Sayornis nigricans</u> <u>semitra</u> (Vigors).
Phoebe, Say	<u>Sayornis sayi</u> (Bonaparte).
Pigeon, Band-tailed	<u>Columba fasciata</u> <u>fasciata</u> Say.
Quail, Gambel	<u>Lophortyx gambeli</u> <u>gambeli</u> Gambel.
*Raven, American	<u>Corvus corax</u> <u>sinuatus</u> Wagler.
Road-runner	<u>Geococcyx californianus</u> (Lesson).
*Robin, Western	<u>Turdus migratorius</u> <u>propinquus</u> Mearns.
Shrike, White-rumped	<u>Lanius ludovicianus</u> <u>excubitorides</u> Swainson.
*Sparrow, Desert Black-throated	<u>Amphispiza bilineata</u> <u>deserticola</u> Ridgway.
Sparrow, English	<u>Passer domesticus</u> Linnaeus.
Sparrow, Gambel	<u>Zonotrichia leucophrys</u> <u>gambeli</u> (Nuttall).
Sparrow, Lincoln	<u>Melospiza lincolni</u> <u>lincolni</u> (Audubon).
Sparrow, Western Vesper	<u>Pooecetes gramineus</u> <u>confinis</u> Baird.

CHECK LIST OF BIRDS OF CASA GRANDE NATIONAL MONUMENT (CONT.)

Sparrow, White-crowned	<u>Zonotrichia leucophrys</u> (J.R.Forster).
Swallow, Rough-winged	<u>Stelgidopteryx serripennis</u> (Audubon).
Thrasher, Bendire	<u>Taxostoma bendirei</u> (Coues).
Thrasher, Crissal	<u>Taxostoma crissale</u> Henry.
*Verdin	<u>Auriparus flaviceps flaviceps</u> (Sundevall).
Warbler, Red-faced	<u>Cardellina rubrifrons</u> (Giraud).
Waxwing, Cedar	<u>Bombycilla cedrorum</u> Vieillot.
*Woodpecker, Cactus	<u>Dryobates scalaris cactophilus</u> Oberholser.
Woodpecker, Gila	<u>Centurus uropygialis uropygialis</u> Baird.
Woodpecker, Golden-fronted	<u>Melanerpes aurifrons</u> .
Wren, Cactus	<u>Heleodytes brunnei-capillus couesi</u> (Sharpe).
Wren, Rock	<u>Salpinctes obsoletus obsoletus</u> (Say).

The nomenclature followed is that used by Bailey, Florence Merriam; Birds of New Mexico, New Mexico Department of Game and Fish, 1928.

*****SWM*****

PREHISTORIC RUINS AND THEIR PRESERVATION

By Paul R. Franke

PURPOSE AND SCOPE

There is a definite need among Park Superintendents and Custodians in charge of areas containing historic and prehistoric structures, for a general agreement or policy as regards the maintenance and preservation of these buildings.

As the experiences of the writer are almost solely confined to the management of Southwestern ruins, the problems raised are limited to this area. The questions contained in this outline are submitted as points for consideration in the preparation of a policy, guide, or any memoranda dealing with the treatment and care of ruins. The primary considerations for such a guide should be:

1. The responsibility and adequacy of proper present and future maintenance and preservation.
2. Justification for admitting or restricting the public travel through the structures.
3. The relationship of the whole park or monument, its development, administration, etc., to the so-called "sacred area".

RUIN PRESERVATION

In formulating rules to be followed for the preservation of prehistoric features, it must be borne in mind that such rules are not of universal application and, generally, each area, or even each site or

PREHISTORIC RUINS AND THEIR PRESERVATION (CONT.)

room, differs from every other. The guide should stipulate definite principles rather than procedure.

Southwestern ruins are comparatively numerous. Their construction, often with unstable materials, required short periods of time. Preservation for infinite time with like materials and salvage of their character presents a real problem. These fragile gems are easily destroyed, yet are important heritages to posterity.

QUESTIONS

I. Study of Sites.

Should there be a definite weighting of the site to determine if it is of value from the viewpoint of science, for research, or is its purpose to be an exhibit or show place for the layman or student? The ultimate decision, if made, permitting tourists to visit, enter, and pass through the prehistoric ruins is directly reflected in the preservation and repair policy for that site.

As a basis for stabilization, should detailed studies of ruins be required to determine stresses of timber, strength of rocks, analysis of mortar, study of ground and cave seepage, etc.?

Shall complete architectural and photographic records be kept for each site? If so, are the records to be static and filed away for future generations to review, or for an active factor in maintenance work? How limit the cost of such records?

Would it be advisable to make careful and thorough records of all sites excavated in the future so that the maximum of information can be secured before any alteration of the site by repair has been made? Scientific institutions will never make satisfactory records, for their purposes are not those of the National Park Service, and to do so would be needless expense for them.

II. Repair.

Should every area have a set of specifications for repair? Details for this would include size and style of openings, slope of walls, mortar to be used, method of artificially aging timbers, etc.

Should all repair work be approved before it is undertaken? Should some certain individual be required to examine the site personally before repair and who should possess authority to say what and how much repair should be done?

Shall repair work be preceded by a formal justification including photos and description of condition, estimate of cost, sketch studies

showing appearance of finished repair work?

In repair it is customary to use plaster on wall surface to replace what is fallen and to cap walls with cement surfaces. Would it be desirable to establish whether such procedures do actual good or harm? Certainly the most critical part of any wall is the foundation and these are often neglected.

In repair and reconstruction work, is the use of more staple materials for preservation justifiable, or must the workmen's use of materials be confined to those of the original builders?

Should repair work be set off from ancient work by use of a red line, obvious difference of technique, or other evident distinction? Shall the work of the ancients be copied so that there is no distinction?

Shall the establishment of adequate funds and training of skilled ruin repair workmen be the responsibility of the local area, of the Region, or of the Service as a whole?

THE PUBLIC, EDUCATION AND RESEARCH FACTORS

I. Ruins trails.

Shall the trails be located with regard to the safety of visitors, for scenic effect, to duplicate the prehistoric trail, or shall special location be selected to add thrill to the ruin visit?

Should trail standards be established for each local area? If so, what standards for approach trails and standards for trails within the ruin?

How can we limit the disturbance of natural and prehistoric man-made features to accommodate visitor travel?

What should be the maximum height of ladders for safe visitor travel? Shall ladders be camouflaged and conform to the type used by the aborigines, or is it advisable to improve upon their appearance or their strength? Shall we develop longer or higher ladders for the visitor to add thrill to his trip or limit this ladder height to that of the prehistoric type?

Shall the use of ramps or steps be restricted to the approach trails or are these installations justified within the ruin?

What restrictive features in the way of walls, railings, or other obstacles can be used within the ruin to control and regulate the traffic?

PREHISTORIC RUINS AND THEIR PRESERVATION (CONT.)

Should artificial lighting be installed in dark rooms and passages?

II. Educational factors.

Should each staff be concerned with its own area or should there be duplication or overlapping in the trail lectures or museum exhibits?

In details or archeology, should standards of presentation be used? For example: one type of social or religious life, one kiva story compiled for the whole Southwest?

Is it desirable, for educational purposes, to restore roofs, walls, fireplaces, etc.? Should all restoration be confined to drawings and plaster models which can be changed to conform to new discoveries?

How protect the sites from vandalism? (Efficacy of the guided ruin trip versus the protective patrol).

III. Research.

Should the staff be encouraged to make any studies relating to the ruins? Should scientific institutions be encouraged to investigate sites in Park and Monument areas?

Should a part of educational work by the excavation of sites for information only? Is it permissible to destroy antiquities (earth lodges, masonry walls, trash heaps, etc.) in order to realize the most data possible? Would it be advisable to destroy any cliff dwelling to explore for earlier Basket Maker remains?

If, during repair or as a result of weathering or other cause, any relics are exposed, what disposal should be made of them? Should they be left in place or removed, and where place them for safekeeping?

As travel increases, how should it be taken care of? Should other ruins be developed for use? Should travel be restricted? Should competitive attractions be developed?

Should somebody be delegated to make a study of monument management in foreign countries to see how the public is taken care of? How is the ruin administered in Egypt, Greece, Italy, and elsewhere?

PARK AND MONUMENT MANAGEMENT

Considerable thought should be given to the whole park or monument plan of development and its administration in regard to the features for which they are established.

PREHISTORIC RUINS AND THEIR PRESERVATION (CONT.)

All development of areas is usually preceded by a survey conducted by various individuals representing landscape, engineering, forestry, and other divisions. In archeological parks and monuments, should development be preceded by some competent archeologist to prevent damage to any antiquities and insure consideration of the site in the development program?

How close to the site shall modern buildings be constructed? Shall the necessary park or monument buildings carry the character of the ruin or shall these modern buildings be distinctive so there is no doubt about distinguishing them from the ancient structures.

How close to the ruin shall we go with the automobile road? How far shall we expect the visitor to walk in order to visit the ruin?

Shall the signs for the direction of visitors and those erected for protection of the ruins be in accord in style, materials, and design with a general Park or Monument sign plan?

Would it be desirable and within Park policies to control rodents which work within the mound or cave? What to do about owls, buzzards, and hawks, whose droppings and nests deface the ruin? Shall plant growth whose intrusive roots often do much damage among ruin walls be removed and kept out?

We should accept the statements recognized in the field of archeology that the unexcavated ruins are of greater scientific value than those already excavated, and protection to the former is of utmost importance. The exploration or excavation of ruins by persons untrained in archeology must be prohibited. The appreciation of the "Atmosphere" of an archeological site is necessary for the administrator to maintain that character in competition against the ravages of time, visitor travel, and modernization.

*****SWM*****

MANAGEMENT OF ARCHEOLOGICAL PARKS

By Erik K. Reed.

A comment on Paul R. Franke's memorandum, "Prehistoric Ruins and Their Preservation".

1. Introduction:

The memorandum recently submitted by Assistant Superintendent Paul Franke on "Prehistoric Ruins and Their Preservation" is a very enlightening and stimulating one. After reading it over a few times and thinking about the issues raised, I wish to discuss several of his points. I

am not presuming so far as to attempt to answer categorically the questions posed, although for convenience this memorandum is largely in that form.

2. Study of Sites:

Mr. Franke inquires: "As a basis for stabilization, should detailed studies be required to determine stresses of timber, strength of rocks, analysis of mortar, ground and cave seepage, etc.?" The theoretical answer is "yes" for, of course, such studies would be splendid to have. However, that's a pretty large order, requiring considerable time and a variety of expert knowledge. Perhaps we can compromise, in practice, between detailed preparatory analyses and the rather hit-or-miss, but simpler, method of gradually learning as we go along.

The query as to whether architectural and photographic records should be "static and filed away for future generations to review, or as an active factor in maintenance work" strikes me as unnecessary, as these purposes are not mutually exclusive. Such records should be kept, of each site, at the Park or Monument in which the site is located; they can be utilized currently in connection with maintenance or stabilization and in connection with exhibiting and explaining the site to visitors, and also can be kept for the more distant future. As to how to limit the cost of the records, I see no answer aside from simply using common sense and not making records that are not necessary or at least useful. In each case there will be a certain minimum amount of information, written and photographic, absolutely essential; and the cost is relatively not great anyway.

Although at first glance Mr. Franke's statement that the records made by scientific institutions are inadequate is a bit startling. It is true that in some ways more extensive recording is required when excavations are for Park exhibit as well as research. Would it not be perfectly possible to require the type of records desired to be made by institutions working in Park areas?

3. Repair:

All repair work (except maintenance not entailing alteration of appearance) should be approved by all concerned before it is initiated. On major jobs of extensive stabilization, formal justifications containing the information suggested in the question would be good.

Use of plaster and cement, to an extent, seems to have worked fairly satisfactorily; cement capping of walls definitely not, at least at Chaco Canyon. Neglect of foundations is often due to the fact that the upper parts of walls would have to be destroyed to get at them. Use of concrete and other modern stable materials is perfectly justifiable if concealed; I should say, is the only sensible thing

MANAGEMENT OF ARCHEOLOGICAL PARKS (CONT.)

in many cases. All visible portions of a restored structure should, of course, be of materials similar to those used originally.

Whether repair work should be set off from original or be indistinguishable is a much-debated question. Obvious difference of technique is a poor way out, and red or white lines strewn over a restored structure would rather spoil the effect. Keeping of detailed records will partly answer this; before-and-after photographs, or photographs of the finished structure with lines drawn in setting off restoration from original, can be placed near the building under glass, like view finders or wayside shrines.

4. Ruins-Trails:

Location of trails surely depends on different things at different places. Safety and scenic effect are always to be considered; if there is a definite prehistoric trail to the site it could well be utilized--and would "add thrill" to the visit. Deliberately creating "thrill" in the sense of Sanger surely is not advisable. Ladders should be of the same general type as those of the original inhabitants, of adequate strength to insure safety of visitors. I should think that steps should not be used in trails within a ruin except when either authentic or unavoidable, and that artificial lighting should be installed only when absolutely necessary for safety or for observation of features of the site. I do not believe it is possible to lay down rules except of the most general nature on such questions; each case must be decided separately according to the circumstances, on the general basis of: no more destruction or alteration than is completely unavoidable of the historical and aesthetic values and attributes of the site.

5. Educational Factors:

A certain degree of overlapping and duplication in lectures and museum exhibits is not only necessary but desirable. An amount of general background must be given at each place, and certain specific things must be repeated; for example, a tree-ring exhibit and explanation are needed at every important archaeological park or monument. Although a number of tourists will visit several of the areas and perhaps become rather wearied with dendrochronology, many others will visit only one or two; and this is one subject especially that they all want to know about. Even if they have never heard of the tree-ring "calendar" they ask about it - in saying "How do you know how old these ruins are?"

Certain monuments could well restrict themselves to local archeology or to concentration on special aspects - as, say, ethnobotany at Walnut Canyon. It is not necessary to give at each area the entire story of North American or even Southwestern prehistory in detail. Except at major areas, such as Mesa Verde, Casa Grande, and - when

opened up and developed - Chaco Canyon, very broad outlines will suffice for the general picture, with concentration on, and details of, local archaeology only.

In my brief special reports on White Sands (May, 1937) and Petrified Forest (April, 1937), I have already given vent to some ideas about museums; and in the rough draft - omitted, along with other material, from the submitted report as too lengthy - of my monthly report for July, 1937, was included a discussion of Grand Canyon archaeological development, a part of which is appended herewith as germane to the present subject.

"Grand Canyon archaeology is quite interesting, and the exhibits at the Wayside Museum extremely good. After visiting the area and talking with Messrs. McKee and Schellbach, I am quite sold on development and exhibition, to a moderate extent, of Grand Canyon archaeology--although still strongly opposed to overdevelopment of museums, particularly along the line of trying to cover too many subjects (as for example, playing up archaeology and ethnology to any extent at the Petrified Forest). Far more people visit the Canyon, and stay there longer, than is the case at most other areas; a modest archaeological museum there arouses the interest of people unacquainted with the subject and induces them to visit the Mesa Verde and Southwestern Monuments - and even if they cannot visit the primarily archaeological areas, they at least learn a little about the subject and that one major activity of the National Park Service is conservation of such areas. The Grand Canyon is sufficiently imposing and important that incidental developments, which elsewhere might prove distractions not tying in directly with the main theme, do not detract from it. Perhaps it is egotistical to devote so much emphasis, relatively, to man at a park which presents the entire history of the world and of life - but, people are more interested in their own species than in any other. Here, by the way, is one area where it is quite in line to include (as does the Wayside Museum) the subject of the ancestry of man: fossil humans along with other fossil animals. And, accordingly, here more than elsewhere the topic of the antiquity of man in the New World can be taken up. Southwestern archaeology need not, however, be gone into in any great detail--certainly no more than in the present excellent layout in the Wayside Museum. A degree of explanation of Southwestern prehistory is of course needed, especially in connection with the ruins beside which the museum is situated."

As to standardization of lectures, may I suggest that the men at the area will enjoy the work more, and give better talks, if allowed to present the subject in their own way. They know the material well enough to be accurate without anything approximating set speeches.

Theoretically, and according to general policy as enunciated by the Advisory Board and the Branch of Historic Sites and Buildings,

restorations - as distinct from repairs - should be in the form of drawings or models. Exceptions could perhaps be made, however, in cases when the original is well-known or obvious. Partial restorations especially might be permissible. Also there are cases when restoration of roofs or other features is a protective measure.

Guided ruin trips surely are better protection against vandalism than occasional patrol; no visitors should ever be allowed on or in the ruins unaccompanied by a ranger - and this for their own sake as well as for the sake of the ruins.

6. Research:

There is no reason why trained men among the Park staffs should not do research work, of certain types at least - special studies not involving excavations. They themselves will benefit by keeping in shape, so to speak, and the Park will benefit by gaining additional information to relay to the public. Genuinely scientific institutions can be invited to perform desired excavations, under some arrangement satisfactory to both parties. Certain sites should be kept unexcavated indefinitely, as has been the policy. Excavations by Park staffs should be limited to few and small sites.

Destruction of antiquities (after complete recording) in order to obtain as much information as possible is customary (when necessary) in purely scientific excavations. The situation is rather different in Park areas, and such procedure should be followed only rarely - when the things to be destroyed are minor and typical and the information to be gained quite important. Trash mounds can be torn to pieces without many qualms; but I would hesitate to recommend even partial destruction of a cliff-dwelling to get at underlying remains which will always be there, available later if it is decided that they are extremely important, and protected by the overlying material. Of course, one cannot judge the importance of such things very well until they have been already gone into; we can put it this way - that nothing should be destroyed simply on the chance of finding something worth while under it, or unless there are pretty good indications of really important remains underneath.

The disposal of relics uncovered by weathering or stabilization depends, again, on the circumstances. In-situ exhibit is far more interesting, I think, to the visitors; but is not always practicable. When relics thus found are removed, they should be treated like any other items of the Park museum collections and displayed or stored according to their importance and interest.

7. Park and Monument Management:

Surely the archaeological features of a park should receive equal

or comparable consideration with other fields in planning the development of a Park; an archaeologist should participate in working up the master-plan of any area primarily or even incidentally archaeological.

Administration buildings, parking areas, et cetera, should be well away from the ruins. In cases where insufficient land is owned to permit suitable location of buildings, developments should be postponed until the requisite amount of additional land is acquired, rather than going ahead and constructing very nice buildings backed up against the ruins so closely as to spoil the whole effect of the Monument. Park buildings should be relatively inconspicuous; incidental to the ruins (when they are of sufficient size that this is possible). They should be of the same general style as the ruins when that is feasible, but obviously distinct from them. Glass windows and other modern features, as well as general newness of construction, will largely take care of that.

When it is practicable and relatively inexpensive to run an auto road right up to a ruin, we might as well do so and make life easier for the visitors. Such roads should not be paved or oiled - in the Southwest a black strip of road is pretty conspicuous in the landscape, as compared to natural surface or gravel. But when unusual effort and outlay are required, as in coming down off a mesa-top into a deep narrow canyon, then the building of a road right to the main attraction is unjustified. There still are, fortunately, some people who enjoy parks as much or more when they are not overdeveloped. Also - only those ruins that are in pretty fair condition and can bear up under a good deal of travel should have roads right to them. And by that is meant, within a few hundred feet, not literally right to them. For one thing, space should be left for visitors to take photographs from any side without getting automobiles in the picture.

All official signs in Parks should be of the same general style, I should think. May I bring up the point that they should also be visible and legible, particularly when indicating entrances from highways.

Rodents, birds, and weeds can be replaced. The ruins which they harm cannot.

8. Conclusion:

Again let me specify that the tone of finality and use of personal pronouns in the foregoing does not really mean that I regard it as ex cathedra statements and the answers to Mr. Franke's problems. Also, this is written largely from the standpoint of the Southwest; certain things will have to be handled differently in other areas.

*****SWM*****

GEOLOGICAL REPORT ON TONTO NATIONAL MONUMENT

By Charles N. Gould.

(Note: The original report complete with illustrations is on file and available for reference at the Southwestern Monuments Library, Coolidge, Arizona.)

On January 30, 1938, accompanied by Regional Wildlife Technician McDougall, I inspected Tonto National Monument. We were shown every courtesy by Thomas Onstott, ranger in charge.

This monument, which has an area of 1120 acres, is located in Tonto National Forest, western Gila County, Arizona. By road it is five miles southeast of Roosevelt Dam and, in air line, two miles south of Roosevelt Reservoir. It is easily reached over the Apache Trail from Phoenix on the west, or from Globe on the east; also from Winslow on the north via Payson.

The topography in this section of Arizona is extremely rough. The Tonto National Monument is located on the north slope of a mountain, overlooking the eastern, or Salt River, end of Roosevelt Reservoir.

The entire area around Roosevelt Dam and Reservoir may be considered as the southeastern end of the Mazatzal Mountains.

The Mazatzals form the boundary between Gila and Maricopa Counties. The drain of the western slope of the mountains is into Verde River; that of the eastern slope into Tonto Creek.

The Mazatzals represent the oldest land mass, geologically, in Arizona. The rocks are chiefly pre-Cambrian granite, and it is believed that the area now occupied by the Mazatzals has been a positive area, otherwise a land mass, since very early geologic times.

Lying above the granite of the Mazatzals and exposed along the eastern slope of the mountains, is a series of stratified rocks, probably in part at least of lower Cambrian age, known as the Apache group. The two upper formations of this group, and the only ones with which we are concerned at this time, are the Troy Quartzite and below it the Mescal Limestone. These formations are exposed at Roosevelt Dam. The rocks are here inclined at an angle of approximately 45 degrees.

After the time of the tilting of these beds and the subsequent erosion which truncated the top of the mountain, there occurred in this area a time of great volcanic activity. The geologic age during

which this volcanism occurred is usually considered to be Late Tertiary. Vast amounts of molten lava were poured out from the interior of the earth, covering the underlying rocks. On cooling and hardening, this lava became basalt, which now covers the greater part of the hills in this region.

On Tonto National Monument, with which we are here concerned, there is evidence of great changes or modifications of the sedimentary formations, the Mescal Limestone and Troy Quartzite. As just stated, volcanic activity is much in evidence. The upper part of the ridge near which the caves, hereinafter discussed, are located, consists largely of basalt and other forms of volcanic rocks. Mixed with the volcanic material there are many masses large and small of Troy Quartzite. It has been suggested by certain geologists that the molten volcanic lavas caught up and carried the brittle quartzite and raised the fragments far above their original position. From what I was able to see during the time of my visit to the monument this explanation would appear reasonable. At least none better now suggests itself to me.

The chief attraction on Tonto National Monument are the cliff dwelling ruins built in two caves located high on the cliffs above the valley of Salt River. The caves are in fact rock shelters, excavated by the agents of weathering and erosion in the volcanic rock with included Troy Quartzite which forms the upper part of the mountains.

The lower cave contains about 30 rooms. This cave, located 325 above the custodian's residence at the base of the hill, is approximately 75 feet long, 50 feet high, and 40 feet deep. It is reached by a half-mile trail. This cave is visited by thousands of people each year.

The second, or upper cave, is not easily accessible, and is not generally open to tourists. It is reached by an indifferent trail half a mile long and very steep -- little more than a cow trail. This cave is 300 feet higher than the other. The approximate dimensions of the upper cave are as follows: length, 175 feet; height, 100 feet; depth, 100 feet. It contains 60 rooms. The ruin was originally three and four stories in height. There has been very little in the way of restoration in the upper cave.

The masonry in both caves is rather crude in comparison with other ruins I have seen. The walls have been covered with caliche mud. The greater part of the rooms are rather small and average 72 inches in height. Ceilings are of timber with saguaro fibers. No kivas have been found.

By the tree ring method the date of the upper ruin is placed at 1346 A.D. Abandonment probably occurred in the early fourteen hundreds.

Water to supply the attractive custodian's house comes from two

springs located about one-fourth mile upstream, being carried by gravity. The ancient people probably obtained water from the same source, carrying it in water jars half a mile up a steep trail.

The flora is typically that of the desert, including saguaro, palo verde, cholla, jojobe (ho-ho-be), creosote bush, and mesquite.

The two lower caves have been fenced with strong woven wire to keep out cattle.

In addition to the larger caves there are two others, both smaller, located on the 480-acre tract recently acquired as an addition to the monument.

*****SWM*****

ANTHROPOLOGICAL GLOSSARY

(Continued from January, 1938, Supplement.)

Pasover -- Annual ceremony of Jews to celebrate the sparing of their first born in Egypt.

Patriarchate -- The system of father right with special reference to paternal authority in the family or larger group.

Patrilineal -- Descent or inheritance in the male line.

Patrilocal -- Characterized by residence of wife with husband or his group.

Patripotestal -- Characterized by paternal authority in household.

Patronymic -- Bearing the name of a patrilineal relative.

Peaceful access -- Permission granted to aliens to enter the territory of a tribe to exploit some monopoly of natural resources there.

Pellet-bow -- Bow adapted for shooting pellets instead of arrows.

Pemmican -- A North American food of dried and pulverized meat very often mixed with fat, berries, etc.

Penates -- Ancient Roman divinities of the household, primarily of the store room.

Pestle -- Implement for pounding or pulverizing substances in a mortar.

Petroglyph -- A prehistoric carving or inscription on a rock.

Peyote -- A drug made from cactus by the North American Indian; use involves considerable ceremonial.

Phallicism -- Religious use of sexual symbols, especially of the phallus or representation of the male organ.

Phoneme -- A unit of sound in speech differentiated in a given language from other sounds.

Phratry -- A primary sub-division of a tribe which is further divided into sibs.

Phylactery -- A small leather box containing slips with written scriptural quotations, worn by Jews on head and left arm during prayer as a reminder to keep the law.

Phylogeny -- Race history or evolution of an organism.

Pirrauru -- A relative of opposite sex among certain Australian tribes belonging to the marriage class from which a spouse must be taken and with whom sexual relations are sanctioned.

Pituri -- A narcotic drug made from the dried leaves and twigs of an Australian plant and chewed by the aborigines.

Platyrrhine -- Characterized by a relatively broad nose.

Polyandry -- Form of marriage in which one woman has two or more husbands.

Polygamy -- Form of marriage in which one man has two or more wives.

Polysynthetic -- Characterized linguistically by the fusion of the various elements of a sentence into a single word. (Eskimo is a good example).

Porion -- Uppermost part in margin of external ear opening.

Potlatch -- A ceremony characteristic of northwest coast in which property is recklessly given away or destroyed.

Prayer wheel -- A wheel or drum inscribed by prayers which are deemed efficacious when the wheel turns.

Primary release -- Primitive type of arrow release in which arrow is held between thumb and first finger which do not touch the string.

Primogeniture -- Inheritance by the eldest son or child.

Proa -- An Indonesian outrigger canoe with a large triangular sail.

Prognathous -- Characterized by a projecting snout region or a small facial or maxillary angle.

Projectivism -- Conception of the future life in terms of this.

Property -- Assignment of things to persons, or the things thus assigned.

Pulque -- A mexican beverage fermented from the juice of the agave.

Pump-drill -- A drill operated by means of a cord attached to the top of the drill and the two ends of a cross bar.

Punaluan (Morgan) -- Hypothetical form of marriage in which two or more brothers with their wives, or two or more sisters and their husbands live in a state of sexual communion.

Purlin -- A horizontal support for the rafters of a roof.

Pylon -- A truncated pyramid, two of which usually flank the gateway to an ancient Egyptian temple.

Quern -- Primitive mill consisting of two round stones of which the upper one is turned by hand.

Quinary -- Pertaining to a system of numeration based on number five.

Quipu -- A peruvian mnemonic aid and means of enumeration consisting of a cord from which hangs a fringe of colored and knotted strings.

Reciprocity -- (1) The reciprocal use of the same term by a pair of relatives, especially when of a different generation. (2) The principle advanced by Malinowski that social relations are maintained by reciprocal use of rights and obligations.

Reduplication -- The doubling of a syllable as a grammatical device

or mechanism.

Rites of passage -- The rites which cluster about the great crises of life: birth, puberty, marriage, and death.

Royal endogamy -- The practice of brother-sister marriage in royal families - Ptolemaic, Egypt, Hawaii, Madagascar, Peru.

Rune -- Character in alphabet of early Germanic peoples.

Sachem -- A chief among the northeastern Indians.

Sagamore -- A lesser chief among the northeastern Indians.

Samurai -- The lesser nobility or military class of feudal Japan.

Sand Painting -- Painting with colored sands, especially in religious ritual of Southwestern Indian.

Satrap -- A governor of a province, originally in ancient Persia.

Scapegoat -- An animal or person to whom the sins of a community are ritually transferred, and which is then killed or driven off.

Scapulimancy -- Divination by observing the cracks in heated shoulder blade of animal.

Scrying -- Divination by gazing into water or at crystals. Self-hypnotism or observation of dust or ripples.

Scythe -- A mowing implement, consisting of a curving blade fastened to a long bent snath or handle.

Self bow -- A plain unreinforced bow.

Self-help -- Redressing of an injury or satisfaction of a judgment without judicial intervention.

Sennit -- Cordage of braided, not twisted, coconut fibers in Oceania.

Shaman -- Primitive priest or medicine man, especially one versed in spirit possession.

Shed-- Aperture between two sets of warp threads for the insertion of the weft.

Shogun -- A military ruler of feudal Japan.

Shuttle -- An implement for passing the weft through the shed in the warp threads of a loom.

Sib -- An unilateral kin group, either matrilineal or patrilineal.

Sibilant -- A consonant (Example, S, Z) made with a hissing sound.

Sibling -- A brother or a sister.

Sickle -- An agriculture implement consisting of a curved blade fitted to a tang or short handle.

Skeuomorph -- An article in a new material fashioned in the shape of the original object.

Sojourn -- Period elapsing between death and the time when the ghost departs for the spirit world.

Solstice -- A date when the sun is at the farthest point from the equator, either north or south.

Soma -- (1) An intoxicating drink made in ancient India from a plant of the same name. (2) The body; entire organism with the exception of the germ cell.

Somatometry -- Science or technique of measuring the living body.

Sonant -- A voiced consonant; as, b, d, g.

Sororate -- Practice whereby a man takes an additional wife or

wives from same group as first wife.

Soul -- Spiritual separable double of the human being or thing.

Soul-stuff -- An impersonal supernatural essence or power. Indo- and Melanesia.

Span -- (1) Extreme distance between tips of fingers when arms are outstretched laterally; (2) Distance between tips of thumb and little finger when hand is outstretched.

Spear-thrower -- An implement for hurling a spear, consisting typically of a stick with peg at end to catch the butt of the spear.

Spindle -- A cylindrical shaft usually provided with a notch or hook at one end, either thickened for part of its length or fitted into a perforated flywheel or whorl and rotated to twist the thread when spinning.

Steatopygia -- An exaggerated development of the buttocks, i. e. Bushman and Hottentot.

Stratigraphy -- The study or determination of successive layers of deposits in archeology.

String figure -- A figure made by the manipulation of strings to represent some object or operation.

Subincision -- An Australian mutilation consisting of the slitting of the penis to the urethra on the under side.

Succession -- Rule prevailing in the transmission of office or authority.

Supercision -- A variety of circumcision consisting of making a longitudinal slit in the prepuce instead of excising it completely.

Superorganic (Spencer-Krocker) -- Realm of social or cultural phenomena.

Superstition -- A religious survival which has no basis in existing religion or science.

Supraorbital -- Pertaining to the bony ridges over the eye orbits.

Surd -- An unvoiced consonant; as, p. t. k.

Survival -- An element of culture surviving after its original meaning and function have disappeared.

Suttee -- A Hindu widow cremated on funeral pyre of husband.

Suture -- A line of articulation between bones, especially of skull.

Sweat Lodge -- A small hut in which steam baths are taken.

Symbiosis -- Living together in close association of two dissimilar organisms.

Syncretism -- Union or fusion of two cultures through contact. Especially widely used in religion.

Syndiasmian (Morgan) -- Pertaining to a union between one man and one woman which differs from monogamy in its impermanence and absence of exclusive cohabitation.

Syngenism -- Sentiment of attachment and union resulting from being born and reared together.

Syntax -- That part of grammar which deals with order, concord, and government in sentence structure.

Syrinx -- Musical instrument, particularly the pan pipe.

Taboo -- A prohibition resting on a magno-religious sanction.

Talisman -- An object believed to be a protection against evil, especially if its efficacy is due to astrological arts.

Tapa -- Polynesian bark cloth. Oceania.

Taro -- A plant, the root stock of which is stable food in Oceania.

Tattoo -- A decoration of the skin in which pigment is introduced under the skin by pricking or cutting.

Taupou -- A girl raised by Samoan chief to a position of prestige in the village.

Towing -- A method of preparing skins by imbuing them with alum or other agents to soften or bleach them.

Teknomymy -- Practice of naming parent after his child.

Terramara -- A mound over an Italian neolithic or Bronze Age site.

Thobbing (H. Ward) -- Wishful thinking.

Thole pin -- A pin set in the gunwale of a boat to serve as a fulcrum for an oar.

Three-field System -- A variant of the two-field system of land cultivation, in which the land is divided into three parts, of which one or two in rotation lie fallow each year while the rest is cultivated.

Thunderbird -- A mythical bird thought by some African and North American tribes to cause thunder.

Thunderstone -- A stone popularly regarded as a thunderbolt.

Tie-dyeing -- A method of dyeing in which a portion of the fabric is reserved by protective binding.

Tipi -- Conical skin tent of many North American tribes.

Tithe -- A contribution or tax of one tenth part of income or profits especially for religion or charitable purposes.

Toboggan -- A long, light, flat-bottomed sled made of boards curving upward at the front end.

Tonalamatl -- The 260-day ritual calendar of the Aztecs.

Tonsure -- The shaving crown marking the occupation and rank of ecclesiastics.

Torque -- A twisted metal collar characteristic of the Bronze and Iron Age of northern Europe.

Tort -- An offense for which a civil action may be brought.

Totemism -- A form of social organization and religious practice typically involving an intimate association between sibs and other groups and particularly animal and other objects which are regarded as ancestral and tabooed as food and from which the groups derive their names.

Tournette -- A revolving tablet on which a pot is placed for painting.

Towers of Silence -- Places where the Parsees expose the bodies of their dead to be eaten by vultures.

Transmigration -- Passing of soul after death into another body, often of an animal.

Transvestite -- Person adopting the dress of the opposite sex.

Travois -- A primitive vehicle of Plains Indians, consisting of crossed poles dragged behind an animal and supporting a load.

Tree-marriage -- A mock-wedding ceremony uniting a man or woman

to a tree. Common in India, sometimes as a part of the wedding ceremony, sometimes to enable a younger sibling to marry before an elder.

Trepanation -- Excision of a segment of a cranial bone.

Tribe -- A group of people defined by possession of one or preferably several of the following: A common name for selves, definite territory, distinct language or dialect, senses of social solidarity, and homogeneous or distinctive culture.

Troglodyte -- A member of a tribe that dwells in a natural or artificial cave.

Troll -- (1) A nature spirit, often a giant or dwarf, in Teutonic mythology. (2) To fish with hook and line drawn behind a boat.

Tump-line -- A strap across the forehead to assist in carrying a burden on the back.

Tumulus -- An earthen mound, generally covering a grave.

Tundra -- A treeless Arctic plain with a permanently frozen subsoil and a black sticky surface soil, supporting lichens, mosses, and dwarf herbs and shrubs.

Tutitary divinity -- Protective or guardian spirit or diety.

Twined weave -- A technique in weaving or basketry in which two or more weft elements pass together across the warp twining around each other and at the same time enclosing one or more warp elements between them.

Ulotrichous -- Characterized by wooly or frizzy hair.

Ultimogeniture -- A preferential inheritance by the youngest child.

Umius -- Large women's boat of the Eskimo.

Uction -- An ointment as with oil for medicinal reasons or as a symbol of consecration.

Universal culture pattern (Wissler) -- The very generalized pattern to which all cultures conform.

Usufruct -- Right to use or enjoy a thing without ownership.

Vampire -- The ghost or reanimated body of witch or wizard thought to leave graves at night and wander about sucking blood of sleeping persons.

Vasu -- Fijian custom allowing nephew extraordinary rights as against his maternal uncle.

Vilar -- A consonant articulated between the back of the tongue and the soft palate.

Vendetta -- Blood feud.

Ver Sacrum -- An offering in fulfillment of a vow of all children born during a sacred spring season involving their leaving the community as colonists when adult.

Vicarious sacrifice -- A sacrifice offered as a substitute for another; i. e., an animal for a human victim.

Vigesimal -- Pertaining to a system of enumeration based on 20.

Votive offering -- An offering given in fulfillment of a vow.

Waddy -- An Australian throwing club.

Wakan -- Siouan term for impersonal supernatural power.

Wake -- A vigil with dead body, often with festivities.

Wampum -- Strings or later belts of shell beads among northeastern

Indians.

Warp -- Longitudinal threads in loom weaving.

Weft -- Woof or transverse threads in weaving.

Weir -- A fence or dam built in a stream for taking fish.

Werewolf -- A person capable of assuming the form and traits of a wolf.

Wergild -- A fixed monetary value set on a human life, acceptable in lieu of blood vengeance.

Whey -- The watery part of milk separable from the coagulable part as in making cheese.

Wigwam -- Hut of northeastern Indians consisting typically of poles overlaid with bark, mats, and the like, and usually arched in shape.

Windbreak -- Very primitive shelter consisting of a mere screen against the prevailing wind.

Wurley -- Rustic hut of Australian aborigines; i. e. leanto of leafy boughs.

Xanthoderm -- Characterized by yellow skin color.

Xylophone -- An African musical instrument consisting of a graduated series of wooden bars struck with two small wooden hammers.

Yarn -- spun cotton thread.

Yoni -- A Hindu religious symbol representing the female genitals.

Yurt -- Felt tent, cylindrical dome, characteristic of Central Asiatic nomads.

Ziggurat -- A Babylonian temple pyramid with an outside spiral staircase.

Zoolatry -- Animal worship.

Zygomatic arch -- Arch made by the molar or cheek bones.

*****SWM*****

RUMINATIONS

Well, it looks like we are going to find out pretty soon what a visitor will do when you give him a short mimeographed pamphlet and turn him loose on a desert trail. This trail has taken several months in the making because we could only give it odds and ends of time when something else was not more pressing. At present it is in a sort of compromise stage and no one is completely satisfied with it.

Will a visitor walk a little less than a mile to ten different stations where he will receive an assortment of information as to the flora, fauna, and archaeology of the monument? I believe he will but the boys have cut the number of stations for fear we will overtire him.

Will the visitor in walking the short mile read more than twelve single spaced pages of typewritten matter on the various things he sees; about two pages per stop? I believe he will but the boys have cut the number of pages for fear he will not. My theory would be to give him the whole story, letting it run to thirty or forty pages, as we estimate it would, and then let him skip what doesn't appeal to him rather than

condense it to the point where interest is likely to be lost because your narrative is simply a series of statements.

Thus the battle of the trail has waged back and forth on the grounds of theory and now we are about ready to try it on the visitor, who, here as in so many other cases, is the court of last resort.

*****SWM*****

It is a great satisfaction to us to record that we now have a permanent position established at Navajo National Monument and a permanent man in it. Thus the needs of another grand group of ruins have been at least partially met and another landmark in the protection of the Southwestern Monuments has been established. We can now turn our attention and concentrate our efforts on getting a full time position and man to occupy it at one of three or four other monuments which are still suffering for lack of such protection.

*****SWM*****

Looking back over the last few years we can see that we are gradually moving ahead in the matter of protection of our monuments and service to the public, but the movement is sometimes discouragingly slow.

Cordially,

The Boss

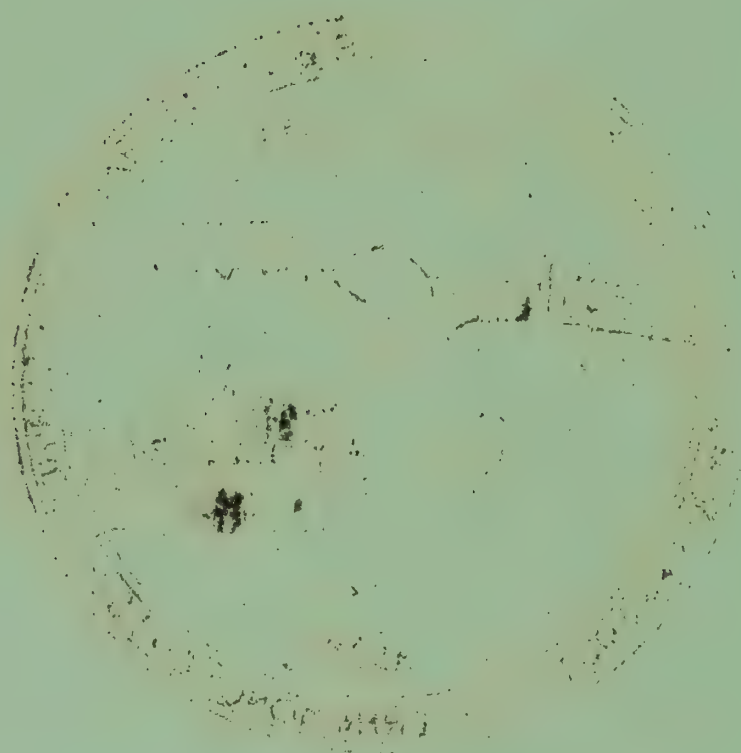
SOUTHWESTERN MONUMENTS MONTHLY REPORT



DEPARTMENT OF THE INTERIOR
NATIONAL PARK
SERVICE

NOV 27 1917

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DEPARTMENT OF THE INTERIOR

NATIONAL PARK

SERVICE

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SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, superintendent; Hugh M. Miller, assistant superintendent; Parke W. Soule, chief clerk; J. H. Tovrea, assistant engineer; Dale S. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Natt N. Dodge, junior park naturalist; Luis A. Castellum and Russell Landry, clerk-stenographers; Ira G. Goodwin, CCC clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

<u>FIELD STATIONS</u>	<u>VISITORS, 1937</u>	<u>ACRES</u>
1. <u>Arches</u> ;	1,000; Moab, Utah; Harry Reed, custodian-----	4,520.00
2. <u>Aztec Ruins</u> ;	14,303; Aztec, N. M.; T. C. Miller, cust.---	25.88
3. <u>Bandelier</u> ;	14,380; Santa Fe, N. M.; C. G. Harkins,----- custodian; George H. Sholly, grader operator.	26,026.20
4. <u>Canyon de Chelly</u> ;	1,422; Chin Lee, Ariz.; Johnwill Faris, custodian.	83,840.00
5. <u>Capulin Mountain</u> ;	26,100; Capulin, N. M.; H. Farr, cu.---	680.37
6. <u>Casa Grande</u> ;	33,661; Coolidge, Ariz.; A. T. Bicknell,----- custodian; David J. Jones, park ranger; Jimmie Rodgers, Stremple Coyle, Victor Scholz, Teddy Savage , and James Holt, CCC guides and helpers.	472.50
7. <u>Chaco Canyon</u> ;	8,014; Chaco Canyon, N.M.; L.T. McKinney, cu.---	21,512.37
8. <u>Chiricahua</u> ;	9,228; Douglas, Ariz.; Frank L. Fish, cust.----- Enrollee Minton and CCC Guides Homer Bennett and William Stone.	4,480.00
9. <u>El Morro</u> ;	2,298; Ramah, N.M.; R. R. Budlong, cust.-----	240.00
10. <u>Gila Cliff Dwellings</u> ;	250; Cliff, N. M.; no custodian----	160.00
11. <u>Gran Quivira</u> ;	4,414; Gran Quivira, N.M.; G.L. Boundey, cu.-	610.94
12. <u>Hovenweep</u> ;	500; in charge of T.C. Miller, Aztec, N. M.----	285.80
13. <u>Montezuma Castle</u> ;	9,813; Camp Verde, Ariz.; Earl Jackson, custodian; Edwin C. Alberts, park ranger.	520.00
14. <u>Natural Bridges</u> ;	740; Blanding, Utah; Zeke Johnson, cu.--	2,740.00
15. <u>Navajo</u> ;	329; Kayenta, Arizona; John Wetherill, custodian; William F. V. Leicht, park ranger.	360.00
16. <u>Organ Pipe Cactus</u> ;	5,000; Ajo, Ariz.; no custodian-----	330,670.00
17. <u>Pipe Spring</u> ;	1,042; Moccasin, Ariz.; Leonard Heaton; cu.-	40.00
18. <u>Rainbow Bridge</u> ;	300; Tonalea, Ariz.; no custodian-----	160.00
19. <u>Saguaro</u> ;	20,000; Tucson, Arizona; no custodian-----	63,284.00
20. <u>Sunset Crater</u> ;	10,000; Flagstaff, Ariz.; P. Beaubien,-----	3,040.00
21. <u>Tonto</u> ;	5,368; Roosevelt, Ariz.; T. Onstott, in charge-----	1,120.00
22. <u>Tumacacori</u> ;	18,472; Box 2225, Tucson, Ariz.; L. Caywood, cu.-	10.00
23. <u>Walnut Canyon</u> ;	10,772; Flagstaff, Ariz.; P. Beaubien, rang.-	960.00
24. <u>White Sands</u> ;	91,532; Alamogordo, N. Mex.; Tom Charles,--- custodian; James B. Felton, park ranger; Joe Shepperd, grader operator.	142,987.00
25. <u>Wupatki</u> ;	2,080; Flagstaff, Ariz.; P. Beaubien, in charge-----	35,865.00
26. <u>Yucca House</u> ;	400; Cortez, Colo.; T.C. Miller; Aztec, N.M.-----	9.60
Total--291,426 visitors 1937; 1,132 sq. mi.; acres-----		724,619.96

OPENING

By Superintendent Frank Pinkley,
Southwestern Monuments,
Coolidge, Arizona.

Dear Mr. Director:

The month of April was a mild and pleasant month over the southern part of our district but was marred by one young blizzard over the northern part. All roads were open and travel seems to have been heavy over them. Roads around Montezuma Castle were hard hit by the storm mentioned above but are being repaired and put in good condition at this writing.

Travel to our monuments was much larger than last month or last year for the same month. We are a little puzzled by this because business conditions are a little tighter and curio dealers and other luxury businesses report the tourist purse to be less open than it was two or three months ago.

Business conditions are reported on the under side of good; for the first time in a couple of years business charts show no white spots of good business in our district.

As of April 30, several personnel changes have taken place. Clerk-Stenographer Millard Singerman transferred to the Petrified Forest National Monument and was replaced by Russell Landry. Papers have come through for the appointment of James Brewer, Jr. permanent ranger at Aztec Ruins National Monument, and Donald Lgermeyer, permanent ranger at Casa Grande National Monument. David J. Jones completes his tour of duty at Casa Grande National Monument and returns to his station at Wupatki National Monument for the summer season. Jesse D. Jennings and Jane have gone to Ocmulgee National Monument and Edwin Alberts has been appointed ranger at Montezuma Castle National Monument. The time of Thomas Onstott, temporary ranger at Tonto National Monument, expired and this interesting and well visited monument will have no one in charge during the month of May.

Visitors to the number of 31,720 kept our men busy this month and many thousands of them could not be reached with our information and protection services because of lack of personnel. This makes 137,052 visitors through the winter season or since the first of last October and compares favorably with the 113,251 visitors for the same period of the previous year. This increase, I am happy to report, has not occurred at any of the monuments where damage would result.

Our CCC camps at Bandelier, Chiricahua, Chaco Canyon, and Casa Grande have continued to function in a very satisfactory manner. We have a new CCC camp, NM-5-A, near Flagstaff, Arizona, starting May 1. With this camp we hope to get some very necessary work done at Walnut Canyon, Sunset Crater, and Wupatki National Monuments. While officially

OPENING (CONT.)

the camp is ours as of May 1, it is really yet under construction and we will probably be unable to get our personnel installed and the camp at work for another sixty days.

Our financial situation is very much better since the release to us of our impounded funds and it looks as if we will be able to get caught up with motor equipment replacements, office equipment, and the many other supplementary needs which we had feared we would not be able to fill. This means that we will be able to function to the fullest extent next fiscal year.

Approval was given by the Advisory District Grazing Board to the extension of our boundaries at Arches National Monument. This opens the way to an enlargement of that monument for proper administration. Following the proclamation, if and when issued, we will be ready to ask for a CCC camp for the preliminary development of that monument.

All field work has been done on the problems of Saguaro National Monuments and the results are in the Washington Office awaiting further action.

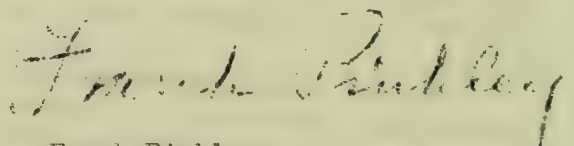
We note that satisfactory progress has been made in Washington on the Chiricahua extension and are anxiously awaiting the proclamation.

We are able to report progress on the extension at Walnut Canyon National Monument and this problem also is in the Washington Office awaiting further action.

We are looking for a pretty heavy travel season this summer and have the papers of all temporary rangers in for approval so that we may be prepared for the visitors when they arrive. We are still undermanned at several places and thus unable to give satisfactory service all over the district, but we are in a much better condition in this regard than we were three or four years ago.

We look forward into the next fiscal year with considerable satisfaction and can promise a good year of service if there is no impoundment of our funds.

Cordially,



Frank Pinkley,
Superintendent.

CONDENSED REPORT

IN WHICH ARE GIVEN HIGHLIGHTS OF THE MONTH



Coolidge, Arizona,
May 1, 1938.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for the month of April, 1938, follows:

	April 1938	April 1937	April 1936	To First of April	Travel Yr. To Date
Arches	150	--	--	446	596
Aztec	3,449	1,102	701	4,681	8,130
Bandelier	845	667	742	3,097	3,942
Canyon de Chelly	65	4	22	284	349
Capulin Mountain	1,100	1,000	600	3,600	4,700
Casa Grande	3,823	3,627	3,436	20,365	24,188
Chaco Canyon	840	803	791	1,377	2,217
Chiricahua	1,050	1,087	550	3,241	4,291
El Morro	206	114	42	624	830
Gila Cliff Dwellings	0*	--	--	25	25
Gran Quivira	263	202	229	1,072	1,335
Hovenweep	0*	--	--	--	--
Montezuma Castle	1,107	948	1,054	3,287	4,394
Natural Bridges	0*	--	--	147	147
Navajo	34	--	--	83	117
Organ Pipe Cactus	800*	--	--	4,200	5,000
Pipe Spring	214	38	96	731	945
Rainbow Bridge	10*	--	--	66	76
Saguaro	2,472*	1,302	1,200	14,600	17,072
Sunset	227	--	289	1,784	2,011
Tonto	717	840	876	2,835	3,552
Tumacacori	2,571	1,808	1,700	7,695	10,266
Walnut Canyon	908	635	647	2,209	3,117
White Sands	10,700	8,278	5,709	28,397	39,097
Wupatki	169	264	146	416	585
Yucca House	0*	--	--	70	70
TOTALS-	31,720	22,719	18,830	105,332	137,052
*Estimated	Same date a year ago-			113,251	
	INCREASE-			23,801	

This month brought a sharp upturn in travel records with 31,720 visitors to the monuments as compared with 22,719 in April, 1937, and 16,159

CONDENSED REPORT (CONT.)

recorded during March, 1938. A detailed discussion of travel is given on page 346-d of this report. Heavy influx of visitors to several monuments for the annual Easter Sunrise Services had much to do with the large volume of travel.

000 GENERAL

010 Matters of Unusual Interest or Importance

Arches: The proposed boundary extension has been approved by the Advisory Board of the local Grazing District (see p. 296). New and spectacular arches were located during the month (see p. 297).

Bandelier: The custodian disarmed and took into custody a man who threatened his life (see p. 331).

Chaco Canyon: A large section of ruin wall fell (see p. 341).

Montezuma Castle: For safety it has been found necessary to limit parties in the ruins to nine persons and the guide (see p. 307).

Tumacacori: What is believed to be the remains of an ancient barbecue pit was discovered during April on the monument (see p. 314).

Walnut Canyon: The advance contingent to prepare buildings for the new CCC camp arrived April 18 (see p. 298).

020 General Weather Conditions.

With the exception of cold and wintry weather at Navajo and Capulin Mountain, and unusually cold and wet weather at Natural Bridges, normal spring windy and variable weather has prevailed throughout the Monuments. Casa Grande reports a hot dry April.

100 ADMINISTRATIVE

120 Monument Inspections by-

123 National Park Service Personnel

Arches: Superintendent Nusbaum.

Bandelier: Dale King, Herb. Maier, Wm. Wirt, W. W. Yeager, M. J. McColm, and Mssrs. Finney, Ayers, Pesonen, Alexander, Ballard, and Reed.

Casa Grande: Jack Diehl, H. A. Montgomery, and A. E. Underhill.

Chaco Canyon: Dale King and Cal. Miller.

Chiricahua: Jack Diehl, H. A. Montgomery, and L. V. Randau.

Canyon de Chelly: Dale King.

El Morro: Wm. Hogan, Erik Reed, and Ernest Reed of Yosemite.

Gran Quivira: Jack Diehl and H. A. Montgomery.

Montezuma Castle: Jack Diehl, H. A. Montgomery, A. T. Bicknell, A. E. Underhill, and J. H. Tovrea.

Natural Bridges: Superintendent Nusbaum (see p. 339).

Tonto: Jack Diehl and H. A. Montgomery.

Tumacacori: Frank Pinkley, J. H. Tovrea, Dale King, and Luis Gastelum.

Walnut Canyon: H. Miller, L. Gastelum, A. Keuhl, H. Cornell, D. King, M. J. McColm, Jack Diehl, and H. A. Montgomery.

White Sands: L. V. Randau, C. Richey, J. Hamilton, Jack Diehl, and H. A. Montgomery.

125 Other Government Officers

Aztec Ruins: Jack Frost, U.S.G.S. (see p. 289).

CONDENSED REPORT (CONT.)

Gran Quivira: Inspector Farrar (See p. 288).

140 Labor Situation

Montezuma Castle: Many men are applying for work (see p. 307).

Tonto: The mines have laid off many men (see p. 316).

170 Plans, Maps, and Surveys

Navajo: A survey to determine the most practical site for the proposed headquarters is being carried out (see p. 295).

180 Circulars, Placards, and Publicity

Arches: Two photos of scenes in the monument together with a write-up of the area appeared in the current issue of "Southern Utah News and Views" (see p. 297).

Bandelier: A photograph in color of the ruins of Tiyuonyi appeared in the May, 1938, issue of the National Geographic Magazine. This was one of several photos and write-ups of national monuments included in a long feature article on the State of New Mexico (see p. 332).

Casa Grande: The informational map-folder is in demand (see p. 332).

Headquarters: Personnel photos were provided for the Associated Press (see p. 346-b). One thousand and fifty of the informational map-folders have been sent out to fill requests.

White Sands: The May issue of the National Geographic Magazine contained a color picture of the Sands (see p. 317).

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION.

210 Maintenance, Unusual

Bandelier: Repairs to the burned garage are nearly complete. Residences have been put in shape for the season (see p. 331).

Casa Grande: The difficult task of unplugging the sewer line was made necessary by plant roots entering the joints in the tile (see p. 346).

Montezuma Castle: Preparations for surfacing the entrance road are well under way (see p. 304).

Pipe Spring: Repairing the dirt roof of the old cabin was completed with some difficulty (see p. 293).

Tumacacori: Work of capping the old cemetery wall was started and other stabilization work is planned (see p. 313).

White Sands: Sand blown over the roads has kept the grader operator busy throughout the month (see p. 286).

220 Improvements

Montezuma Castle: A rustic sleeping porch was made (see p. 304).

Pipe Spring: One new fireplace and three garbage can stands have been finished in the campground (see p. 293).

Tumacacori: Repairs have been made on the Custodian's residence, and the planting plan is progressing (see p. 313).

230 New Construction

Chiricahua: The new residence is practically complete and the custodian has moved in (see p. 319).

231 CCC Construction

Bandelier: Walls and roof of the Lobby and Sales Room were completed, the Employees' Dormitory is ready for plastering, the Operator's Residence has been started with the basement finished and footings to sub-floor height, three walls of the Power House are up to the

CONDENSED REPORT (CONT.)

five foot height, and the generator is being installed (see p. 332-333).

Casa Grande: The shop is ready for plastering, the warehouse up to lintel height, 29 man-days were spent on the sewer and general clean-up, and 71 man-days making adobes (see p. 326).

Chiricahua: On the Bonita Highway 500 square yards of banks were sloped, the masonry wall around the utility area is 95 per cent complete, and the custodian's residence was completed (see p. 320).

Mobile Unit: Four man-days were spent in wall patching, four man-days in repairing fence, 86 in cleaning ditches, 62 in repairing cappings, and 315 in wall support work (see p. 342).

232 R. D. Construction

White Sands: Work has been slow on the buildings, wiring has progressed well, planting is 95 per cent complete, and the well holes now contain water of questionable quality (see p. 285-286).

300 ACTIVITIES OF OTHER AGENCIES

320 Cooperating Agencies

Bandelier: Scaled Quail were provided by the State Department of Game and Fish (see p. 332).

Canyon de Chelly: Fine cooperation has been received from the concessionnaire (see p. 299). The U. S. Geological Survey intends to carry on work in the monument during the summer (see p. 300).

Chaco Canyon: Protection of banks is being planned by the Indian Service and the Soil Conservation Service (see p. 340).

Chiricahua: As a fire suppression aid, a visibility map of the area from Sugar Loaf Lookout has been made by the USFS (see p. 319).

El Morro: Scaled Quail have been reestablished on the monument through the aid of the State Game and Fish Department (see p. 336).

Headquarters: Personnel of the Indian Service and of Pueblo Grande were of great assistance in obtaining photos of Pima pottery and basket making. The Boyce Thompson Arboretum aided through identifying herbarium specimens, and the Arizona State Highway provided plants which were sent to Tumacacori for the plantings (see p. 348).

Walnut Canyon: The Forest Service provided landscaping plants (see p. 298).

350 Donations and Accessions

Bandelier: One piece of Jemez pottery and a Bendire Crossbill study skin were obtained during the month (see p. 331-332).

Casa Grande: Forty-two bird study skins and a copy of Haury and Gladwin's new book, "Report on the Excavations at Snaketown", were received (see p. 321).

Headquarters: The Branch of Education received 288 lantern slides and 300 feet of movie film, while the machine shop obtained taps and dies, a paint gun, drills, and a cutting attachment for the welder (see p. 346).

Montezuma Castle: One flat-top museum case was donated (p. 304).

400 FLORA, FAUNA, AND NATURAL PHENOMENA

410 Ranger, Naturalist, and Guide Service

CONDENSED REPORT (CONT.)

Casa Grande: The new Desert Trail is in use (see p. 327).

Montezuma Castle: Park Ranger Jennings was replaced by Alberts. A botanical garden has been started (see p. 304-5).

White Sands: Contact work is better organized. Difficulty is being encountered in separating "recreationalists" from "knowledge seekers" (see p. 287).

420 Museum Service

Bandelier: Park Naturalist King installing exhibits (p. 331).

El Morro: Lack of space is a great handicap (see p. 337).

460 Birds

Bandelier: Bird banding records are on page 332 as is also the report of the Scaled Quail killed by a bobcat.

Casa Grande: Nine new species for the monument were recorded (see p. 324). Bird banding records show 76 birds handled (see p. 346-c).

El Morro: Nesting eagles aroused visitor interest. Scaled Quail were released on the monument (see p. 337).

Montezuma Castle: Betty Jackson's report is on page 308.

Pipe Spring: The bird-banding report is on page 293.

Tumacacori: Thirty-two birds were banded. One recovery is noted and returns are discussed on page 313-314.

470 Animals

Gran Quivira and Tonto report many rattlesnakes (pps. 288 and 316).

Montezuma Castle: Humpbacked Suckers are very scarce (see p. 305).

Tumacacori: A detailed description of a battle between a tarantula and tarantula hawk is recorded on page 315.

480 Miscellaneous

Chaco Canyon: Threatening Rock continues to move (see p. 341).

Montezuma Castle: Considerable interest is being shown in the local game protective organization (see p. 306). The custodian is marking plants for future transplanting (see p. 306).

Natural Bridges: Wet weather has made the area inaccessible by car.

Tonto: Almost no wild flowers are blooming this year (p. 316).

White Sands: An interesting biological problem may be near solution (see p. 317).

500 USE OF MONUMENT FACILITIES BY THE PUBLIC

510 Increase or decrease of travel

Aztec Ruins: This month marks the all-time record (see p. 289).

Casa Grande: An analysis of attendance is given on page 346-f.

Chiricahua: The only monument reporting a drop in travel this month.

520 Affecting Conditions

Aztec Ruins, Casa Grande and White Sands greatly raised their travel records through Easter sunrise services.

530 Newsworthy Visitors

Tumacacori: Fourteen delegates to the convention of Mu Alpha Nu, and 43 members of the Sierra Club visited the monument (p. 312).

540 Public Camps

CONDENSED REPORT (CONT.)

600 PROTECTION

610 Police

Bandelier: Robert Hostettler was brought before the U. S. Commissioner for threatening the custodian with firearms (see p. 331).

620 Fire

Chiricahua: A crew of CCC enrollees suppressed a fire outside the monument on April 4 (see p. 318).

640 Destruction of Predators

El Morro: Two house cats were removed (see p. 336).

650 Signs

Montezuma Castle: Three warning signs were installed in weak places in the Castle (see p. 304).

700 ARCHEOLOGY, PREHISTORY, AND HISTORY

Tumacacori: An interesting pit believed to **have been** used for meat roasting was discovered during the month (see p. 314).

Casa Grande: Cleaning and cataloguing of study specimens has been carried on (see p. 322).

900 MISCELLANEOUS

Yucca House: One large section of the wall has fallen in the southeast corner of the ruin (see p. 291).

MAIL COUNT

Incoming:

Official

1,941

Personal

1,328

Total incoming

3,269

Outgoing:

Official only

2,851

Total outgoing

2,851

TOTAL POSTAL MAIL

6,120

Telegrams:

Incoming

34

Outgoing

23

Total telegrams

57

GRAND TOTAL PIECES OF MAIL HANDLED

6,177

Cordially,

Frank Pinkley

Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

WHITE SANDS

By James Feltón, park ranger,
Alamogordo, New Mexico.

Visitors this month, 10,700; total since October 1, 102,232.

TRAVEL

Twice as many people were counted as visitors to the monument during the past month than on any previous month since the ranger went on duty at the White Sands. A larger percentage of these "dudes" were contacted and given information than in the past. The Play Day accounted for nearly half of the visitors actually checked while going into the sands. Easter Sunday was also responsible for a boost in our travel figure. Week-end visitors increased in number, with more of them coming on Saturdays. Via the black-top highway, 1,009 cars and trucks with 6,025 people were checked into the monument. Estimating the casual visitors who stop along Highway 70 to see the White Sands, our total figures are 10,700 people and 1,570 automobiles.

CONSTRUCTION

Work on the buildings was generally slow. Several minor jobs, such as installing equipment in the photographic laboratory and the work room, were completed. Wiring and installation of switches progressed with nearly all the circuits operating. Lack of outlet covers and parts for panel switches delays the finishing of this work. Not being able to obtain lime, cement, and stucco for the utility buildings causes them to remain unplastered.

Screens were installed in both residences during the month, but residence #2 remains in practically the same stage as last month. Not having floors in three of the rooms means that the painting, installation of fixtures, and hanging of doors cannot be done. If the house is to be finished soon, the floors will have to be laid.

Planting is 95 per cent complete and several of the cottonwoods are beginning to leaf out. The cactus, sage, and saltgrass seem to be growing, while the yuccas and rabbit brush look as if they would die. It is understood that little success has been obtained in transplanting native shrubs anywhere. However, the roots of all these plants may produce new shoots next spring. The general effect is excellent and we hope that enough of the planting will survive to cover the bare ground around the buildings.

Several large well holes dug by the RD seem to have a quantity of water in them. The quality of this liquid remains unknown, but from

WHITE SANDS (CONT.)

the tastethe ranger can anticipate the "dudes" reaction if it is used for drinking purposes. All the pipe line from headquarters to the artesian well has been dug up. After treating this, we understand that some of it will be used to bring water from the new wells to the monument facilities. Under pressure the domestic water pipes have held up, but the three inch sanitation line has had many leaks, causing much trouble. The boys now have this line pretty well corked up and it looks as if we shall be able to handle the public when the water arrives.

WEATHER

Strong winds bringing many samples from the Dust Bowl have been frequent this month. Southern New Mexico soil has filled the air, and on occasions has limited visibility to less than a mile. During the worst storms, the "ceiling" out in the sands was practically zero. On April 6, light showers were general over the Tularosa Basin.

ROADS

Our spring winds have moved a few large sand dunes onto the unpaved sections of the Monument Highway making maintenance difficult. Much overtime has been put in by our grader operator in order to keep the road open for week-end travel. In spite of all his efforts, there were many days when visitors were forced to buck heavy sands in going to the turn-around. Another constant source of trouble is the breaking through of the clay plate. This must be repaired or large chuck-holes develop.

Visitors making a loop drive to White Sands from El Paso via Las Cruces are complaining in loud voices about the condition of Highway 70. None of the new section east of the paving has been opened to the public, while the old road in this section is deteriorating rapidly under heavy trucking.

GENERAL

Giving the visitor service at White Sands is a problem the ranger has by no means solved. Generally speaking, our week end "dudes" are seeking recreation. Most of these we count as locals as they have visited the monument on previous occasions and are little interested in the geology or ecology of the area. We average over a hundred cars of this type of visitor every Sunday. Naturally, in a few of these groups, we have people who would like all the information obtainable on the Sands. At present we are doing our best to find these folks, but it is hard to be sure that some are not missed.

Once the museum is operating, the job of separating the recreational visitor from the educational will be simplified. We might compare

WHITE SANDS (CONT.)

this unit with a threshing machine, dividing the chaff from the grain. However, large numbers of visitors will always tend to make our educational contacts short in order to reach all the customers. With the addition of the museum, the visitor who comes to play in the sands will probably go on, only spending time to receive instructions; while the interested "dudes" will linger to see what we have and how it is put over.

This closes the best month for the White Sands since the ranger went on duty here. This is true in spite of poor road conditions and adverse weather. Daily travel picked up and on clear week days we were exceptionally busy. Out-of-state travelers who visited the Sands are wondering why we are not better advertized. The general opinion is that we are not well enough known nationally. Once this condition is overcome, travel figures to the White Sands will no doubt compare favorably with several of our National Parks.

PARK SERVICE VISITORS

L. V. Randau, H. A. Montgomery, J. H. Diehl, Charles Richey, and Engineer Hamilton, all from the Regional Office.

SPECIAL VISITORS

Mr. Tom Martin, former landscape architect, N.P.S., with Mr. Evert Beach. They were over-night visitors April 14. Dr. Fred Emerson, botanist, New Mexico State Teachers College.

*****SWM*****

We are very interested in that part of Ranger Felton's report dealing with finding the information-seeking visitor and giving him the information he wants, at the same time not bothering the recreational local visitor who does not want information. As Mr. Felton points out, this is almost impossible under present conditions with the traffic routed around our administration group, but when the new road is paved down in front of our buildings and the traffic into the heart of the sands has to come through our parking area and past our office door, we will be able to find the information seekers without trouble and let the recreational visitor go through with only a moment's stop.

We feel that it is not going to take so very long to give the visitor at White Sands the information he seeks so far as answering the basic questions may be concerned.--F. P.

*****SWM*****

GRAN QUIVIRA

By George Boundey, custodian,
Gran Quivira, New Mexico.

Visitors this month 263; total since October 1, 4,677.

Weather for the month has been cold with much wind and dust. On the thirteenth the thermometer registered six below zero.

I have made considerable use of the dump truck during the month. Our work has been principally cleaning up trails, etc.

Engineers Diehl and Montgomery from the Santa Fe office paid us a visit on the twelfth. On Sunday, April 17, Government Inspector Farrar from San Francisco spent a couple of hours looking over the ruins.

Eighteen thousand dollars are now available for grading the 18 miles of bad road between here and Carrizozo. This road is the shortest route between El Paso and Santa Fe and is bound to be a much travelled road.

The spring of 1936 was very wet here at Gran Quivira and there was a profusion of flowers which were entirely absent in 1937. If we can get some moisture during the next few weeks, we can add to our collection of desert plants considerably. As we only started last spring, we have been able to collect only the more common varieties.

In spite of the cold, several of the spring birds are starting nests. Last spring a pair of sparrow hawks built a nest in the old mission and every party of visitors disturbed them, but they are back in the same old nest again this spring.

Saturday and Sunday (Easter) were the two warmest days we have had so far this month. Mr. Russell, who looks after the visitors on Saturday, reported seeing a number of rattlesnakes, but it wasn't until Sunday afternoon that they began to come out in any numbers. We had about seventy visitors that afternoon and, although we stuck strictly to the trails, there were several snakes in sight at one time. Am sorry it happened, as it is not good advertising. But I don't seem to have much control over the snakes.

Mountainair is working hard to procure from the Carnegie people a library and museum building and the prospects are very favorable that they will get them. Mountainair people are hard workers and I fear this country will be combed for museum material just as it was at Tumacacori.

*****SWM*****

We are glad to note the increase from 202 in April last year to 263 this year. Gran Quivira can stand that much of an increase, and we like to have visitors come if we are equipped to handle them and take care of the ruins. F.P.

GRAN QUIVIRA (CONT.)

That is good news about the \$18,000 being available for expenditure on the road between Gran Quivira and Carrizozo; not so much that it will make a good road of it, but it will tend to mark one of the many roads so that a fellow can travel the same one a second time, a thing I don't think I have been able to do in these many years of trying. I generally just jump off in a direction about south south-east by east and come out some place along the railroad above Carrizozo or, bearing too far to the west, wind up by joining the Carrizozo-Socorro road. In either case it is then easy to get to Carrizozo.--F. P.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 3,449; total since October 1, 7,565.

GENERAL

Travel to this monument for the month of April, 1938, has proved to be the largest not registered total number ever recorded in the history of the monument with 3,449 visitors in 819 cars and buses. Travel for the month of April, 1937: 1,102 people. This shows an increase of 2,340 people. This increase is mainly due to the large number of visitors who attended the second annual Easter Sunrise Services, a report on which will be found under a different heading in this record. All roads in northwestern New Mexico have remained open and greatly improved as compared to their condition in the past. The roads in Colorado are also much improved and better maintained than ever before. The passes in the higher elevations have been closed a few times by snow slides, but in general they have been so much better than in former years that we cannot complain.

WEATHER

Normal temperatures have been noted with about the average number of clear warm days, cloudy days, and a few wind storms.

STATISTICS

Max. temp. (Apr. 18)	77	Clear days	14
Min. temp. (Apr. 2 and 8)	15	Partly cloudy days	9
Precipitation	1.14 inches	Cloudy days	7

SPECIAL VISITORS

Jack Frost, of the U. S. G. S. was here March 25 and 29. Mr. and Mrs. H. R. Rodgers (Mr. Rodgers is State Superintendent of Schools) and the San Juan and McKinley County Superintendents and many local school

AZTEC RUINS (CONT.)

teachers were monument visitors April 1. John E. Casey, of the State Land Office, April 3.

NATIONAL PARK SERVICE OFFICERS

Archeological Foreman Vivian, Engineer Read, Trading Post Operator Tanner and the Navajo Indian CCC enrollees of the Mobile Unit at Chaco Canyon were here on business March 26. Custodians McKinney and Faris from Chaco Canyon and de Chelly, April 1.

ACTIVITIES OF OTHER AGENCIES

The Westward Ho Curio Store opened its doors for business March 27. The curio store is located on the Abrams property about 20 feet west of the parking area. It is being operated by Mr. and Mrs. E. P. Josey. They are putting in a good line of curios and serve cold drinks and sandwiches.

WEDDING BELLS

On Sunday, April 10, Miss Carolie Taylor of Aztec became the bride of Custodian McKinney, Chaco Canyon National Monument. The ceremony, including the ring service, was performed by Rev. J. A. Bell, pastor of the Farmington Methodist Church. The wedding ceremony took place in the Custodian's residence at 3:45 p. m. Thirty-one persons attended the wedding, including members of the immediate family, National Park Service officials, and friends. The Kings from headquarters were present, and Dale and I had a lot of fun at the expense of the bride and groom. We welcome Carolie to the Park Service. She is one of the best known and most popular girls around these parts.

We were all guests at a fine wedding supper following the services.

MONUMENT INSPECTIONS

I was in Chaco all day on April 9. That was my first trip into Chaco since December. The Mobile Unit has certainly improved the looks of Bonito. Both the wall capping and patching has been well handled and looks like a mighty good job. I returned to Chaco on April 10 to attend the wedding mentioned elsewhere in this report.

On April 20 I left Aztec at 7:15 a. m., spent the entire day in Hovenweep and Yucca House National Monuments, and returned to Aztec at 8:30 p. m. At Hovenweep I found several large herds of sheep that had wintered in that country. The owners of the sheep are now engaged in shearing the sheep near the monument boundary. Last winter seemed to be a hard one on the Hovenweep ruins as a number of small sections of the walls have collapsed recently. No evidence of vandalism was noted at any of the ruins. However, much sheep sign can be seen all

AZTEC RUINS (CONT.)

over the monument property and the ruins.

Yucca House seemed to hold its own except on the southeast corner of the ruins where one large section of wall has fallen. The roads in that country were dry but rough. In McElmo Canyon a large WPA crew is working on the road. From ten miles north of Shiprock to Farmington, I was in a rain storm; a regular cloudburst that flooded that whole country.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

The bracing and reenforcing of the museum floor was completed during the month. Much clean-up work has been done, and to date part of the monument ditches have been cleaned. A new mail box was put up at the monument entrance. This monument will soon have daily mail service.

EASTER SUNRISE SERVICES

The largest crowd ever to assemble at this monument came together at sunrise on Easter morning when 2,463 people attended the Easter sunrise services. Most of this crowd was assembled in the Great Kiva and anterooms where the services were held by the religious organizations of San Juan County, united as one body.

This large crowd arrived in 500 cars and buses, coming from the following states: Washington, California, Nevada, Arizona, Colorado, Utah, Texas, Illinois, and Nebraska. Numerous New Mexico cars from distant parts of the state were present. Although traffic on the highway leading to the ruins and in the parking area was heavy, no accidents were reported.

To scout masters, scout organizations, and state police belongs much credit for parking cars, giving information, and assisting in every way possible in handling this crowd.

The help of Custodians Faris and McKinney and two local guides was greatly appreciated. Custodian McKinney drove in from Chaco Canyon that morning and attended the services and returned to Chaco immediately afterward, while Faris stayed on the job until 6:30 p. m. Both boys did excellent work, McKinney was especially good in maintaining order outside the Kiva while services were going on.

TRAVEL

During the month 3,449 people entered the monument in 819 cars and buses, coming from 29 states, the District of Columbia, Cuba, and England. Total travel since October 1, 7,565 people. Travel for the corresponding period of last year, 4,190, an increase of 3,375 people.

AZTEC RUINS (CONT.)

GUIDE SERVICE

Total visitors contacted in the field and museum or both, 3,243.
Number of field trips- - - - - 142.
Number of museum trips - - - - - 147.
Total guide minutes in the field - - - - - 5,300.
Total guide time in museum - - - - - 3,710 minutes.
Total guide time - - - - - 9,010 minutes.

*****SWM*****

Carroll's report brought us the first details of the wedding and we are all happy, I am sure, to welcome Carolie into the organization as another Honorary Custodian Without Pay. Lewis will introduce her to the duties of the position.

The sunrise service seems to have been a big success and seems to have been handled without damage to the ruins, which was an ever-present danger in the back of our minds. We think this is the only place a large audience is handled directly among the ruins and are glad to know that three of our own men and the boy scouts carried the policing out in such a satisfactory manner.--F. P.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian, Moccasin, Arizona.

Visitors this month, 214; total since October 1, 1,256.

Monthly report time again, and I have not accomplished all that I set out to do this month at improving the monument. There have been so many visitors that I have not been able to do much work outside. Also there have been several days that have been too stormy to do much out of doors.

But with all the ups and downs, I have no complaints about my work or what has been accomplished. I feel pretty good about it.

The travel for the month has been considerable more than that of last month, and more than usual for April, which I can't quite understand. Most of the people have been visitors that have come out especially to see the monument.

Guided Visitors		Unguided Visitors	
Visitors- - - - -	117	Visitors- - - - -	97
Parties - - - - -	34	Parties - - - - -	18
Average persons to party- - - -	3.43	Average persons to party- -	5.36
Total minutes of visitors - - -	710	Total minutes of visitors -	357
Average minutes to party- - - -	20	Average minutes to party- -	20

PIPE SPRING (CONT.)

I have had visitors from the following states: Arizona, Utah, Idaho, California, Nevada, Kentucky, Indiana, New York, Colorado, and from Belgium--a big variety for April at this monument.

Bird banding has been carried on through the month with the following results:

<u>New Birds Banded</u>	<u>April</u>	<u>Previous</u>	<u>Total</u>
Gambel Sparrow	59	307	366
Song Sparrow	12	21	33
<u>Repeats</u>			
Gambel Sparrow	244	385	629
Song Sparrow	29	45	74
<u>Returns</u>			
Gambel Sparrow	14	22	36

WEATHER

The weather has been somewhat cool at nights through the month, with ice several times and some snow, hail, and rain which has been a great help to the country and the livestock.

Clear days, 11; Partly cloudy, 9; Cloudy and stormy, 10.

My work outside for the month has been re-roofing with clay of the west cabin, where the wind and rain have taken the clay and bark off during the past nine years. On April 4, I put two loads of dry clay on the roof, but in the afternoon a hard west wind came up, lasting until the evening of the fifth. It took off all that I had put on, so on the sixth I went to work and put six loads on and tamped them down and they are staying on fairly well. It needs some rain to help pack the dirt down. I also made three garbage can racks or stands to hold the cans from blowing and being knocked around. These I set in the ground so that they can't be moved about.

This week I made one fireplace in the camp ground which makes two now completed. I want to get two more made before the summer is on us. I have also started a general clean up of the fort. I want to wash all woodwork and mop up all the floors this next week.

On April 20, 55 new enrollees came into the camp to fill up the ranks, and the past two days I have been having most of them up at the fort, so that I have not been able to get this report on the mail today. I will have to go to town to post it if it gets into headquarters on time.

Since we visited the Tumacacori Mission last month and know somewhat

of how it is built, my wife and I have been discussing it and I happened to have a copy of the monthly report and we noticed that the mission in the Southwestern Monuments seal did not fit the Tumacacori Mission. We are wondering if it is supposed to be the Tumacacori Mission or some other one that I don't know. If it does, the fellow that made the picture got the negative wrong side before and has the entrance on the right side instead of the left as it should be. It may be some other mission, if so it is OK. But I was wondering.

In closing, I am enjoying my work and only wish that I could work faster and get more done, but I guess if I keep hammering away things will finally get where I want them.

*****SWM*****

Congratulations to Leonard for the discovery he has made in connection with the church in our Seal of the Southwestern Monuments. The church in the seal is symbolic of the historic units of our Service and was not intended to be the Tumacacori any more than the ruin on the distant mesa would represent Wupatki, or the volcano in the background represents Capulin. Tov. did use the front of Tumacacori but reversed it intentionally, partly to show that it was not intended to represent that church and partly for artistic reasons as he didn't want the high tower at the edge of his picture. We spoke of this on the fly leaf of the January report and said: "He also put the two stories on the bell tower in allusion to the never-ending argument between Tov. and the Boss as to how the Tumacacori bell tower would have been finished; the Boss, being no draftsman, is unable to show it as it really would have been, but closes with this Underwoodian shot, that it certainly wasn't going to be finished that way!"--F. P.

*****SWM*****

NAVAJO

By William F. V. Leicht, park
ranger, Kayenta, Arizona.

Visitors this month, 34; total since October 1, 117.

GENERAL

A newcomer to Navajo National Monument this past month, I am including in this report a few first impressions. At the outset, I wish to express my deep gratitude to Custodian John Wetherill and Milton Wetherill whose continued help in acquainting me with this monument is invaluable.

What is Navajo National Monument? Officially, it represents the great ruins of Betata'kin and Kitsiel and the lesser unit, Inscription House. But it is more than that. It is rugged canyons, towering ramparts of red cliffs, tree-dotted mesas, slender spires and volcanic

NAVAJO (CONT.)

plugs, a maze of dome-shaped buttes, solitary Navajo Mountain, roads that thrill or frighten the tourists, the empty desolation of the desert, and, at this season of the year, a wind that blows incessantly.

Betata'kin Canyon, with its mixture of Canadian and Upper Sonoran vegetation, is indescribably beautiful.

Kitsiel Ruins, somewhat larger than Betata'kin and equally well preserved, are eight miles distant in Kitsiel Canyon. These ruins are becoming more and more difficult to reach on account of the erosive work of streams.

The small unit of the monument, Inscription House, is about 20 miles away, air-line, in Navajo Canyon. The sculpturing by wind and water of the red Navajo sandstone in this canyon has produced domes, half domes, and great buttresses that come down sharply to the valley floor.

WEATHER

The weather reached its heights of brutality during the week of March 27 to April 2, when blizzards brought an additional foot of snow and near-zero temperatures. On April 4, 5, 6, 7, 8, 12, 13, and 14, there were cold winds, sandstorms, sleet, and flurries of snow.

ADMINISTRATION

Housing conditions are bad at Navajo. The tent shelter is inadequate and practically uninhabitable during bitter weather such as occurred the past month. However, plans are afoot to build adequate and comfortable quarters. I am making a survey for a suitable site and am working on other developments.

MAINTENANCE

The last mile of road approaching the head of the trail into Betatakin is badly washed out. I have been doing work on the worst places. A bad ditch on the road to Inscription House will be given attention soon.

FLORA

Although there are still snowbanks in Betata'kin Canyon, a few blossoms have appeared on species of loco and carrot weeds, there is a faint tinge of green in the aspens, and myriads of plants are showing above ground.

USE OF MONUMENT FACILITIES

There has been an increase in travel over the previous month, partly

NAVAJO (CONT.)

accounted for by Easter vacation. Twenty-nine visitors came to Betatakin, none to Kitsiel or Inscription House. Fifty-six more were in the vicinity and intended coming to Betata'kin but changed their plans on account of bad weather. Of this number 50 were from the State Agricultural College at Logan, Utah. Custodian John Wetherill contacted them at Kayenta. I met the J. B. Priestley party of six near Tuba City when they were en route to Rainbow Bridge. A blizzard drove them south at the time they planned to visit Betata'kin.

*****SWM*****

Bill certainly had a tough introduction to his new job as permanent ranger at Navajo National Monument, going in just as the worst storm of the year struck the canyons. That, however, may be for the best, since he now knows how bad the worst can be.

Changing the position at Navajo from temporary during the summer months to an all-year-round position has automatically displaced Milton Wetherill, who has not yet attained a Civil Service status. We regret this fully as much as Milton does for he has given us much valuable service at Navajo in past years and we expect to use him here and there as occasion arises until a future ranger examination puts him on the available list.--F. P.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

Visitors this month, 150; total since October 1, 596.

BOUNDARY EXTENSION

The Advisory Board of Grazing District #6 of Utah, at their meeting in Moab on April 19, approved a proposed addition to the original extension of the boundary of Arches National Monument which they approved on March 11, 1937. This additional extension would include approximately 1,100 acres, comprising the area between U. S. Highway 160 and the original proposed boundary and extending from the old Mormon dugway to Courthouse Wash. This would make it possible to construct an entrance road from Highway 160 into the monument with all of said road being within the boundary.

WEATHER AND ROADS

Although spring has seemed a long time getting here, it has arrived at last. We have enjoyed beautiful sunshine for the past ten days. Trees are budding and some varieties of desert flowers are in bloom. The temporary road from Highway 160 into the monument is in fair condition. Although we have had some heavy showers, there have been no

ARCHES (CONT.)

washouts. The shale which was placed on the road last fall has held up well.

PARK SERVICE OFFICIALS

On April 1, Jesse Nusbaum, Superintendent of Mesa Verde National Park, was a visitor to the Arches. He was accompanied on a trip to the "Devil's Garden" by Charles Jones and Dr. J. W. Williams of Moab. The party visited a section of the Garden north and west of Landscape Arch. Mr. Nusbaum made a number of photographs of the area.

On Sunday, April 17, I accompanied Charles Jones and Charles Cunningham of Moab to this same area. We found two beautiful arches which I did not know existed in the Devil's Garden. One which we call Surprise Arch is all that the name implies. It is a perfectly formed arch in the base of a high sandstone bluff. One side of the arch opens up on a sand flat which is practically level and covered with cedars. The other side of the arch opens up into a narrow passage which is really a wash. This wash is not more than 40 feet wide and is probably 125 feet deep. Although the direct rays of the sun never strike the bottom of this wash, there is some vegetation growing in it. We noted one pine tree and several small junipers.

The other arch which we "discovered" is one which has been seen and photographed before. I have inquired about its location and was always told that it was in the Squaw Park area which is north and east of the Devil's Garden. It certainly was a pleasant surprise to learn that this arch is less than a mile from Landscape Arch. It is in the very heart of the most rugged part of the Garden and while only 40 feet high by about 75 feet long, it easily ranks as one of the best features of that section of the monument. Photographs of the two arches and another of that section of the monument are enclosed. Also enclosed is a copy of the "Southern Utah News and Views" which carries some interesting articles.

*****SWM*****

We were very pleased to hear that the Advisory Board of Grazing District #6 approved the addition we are asking for and this is a long step on the way to straightening out the problem of development at Arches. The next problem is that of the oil and mining claims; if we can ever untie those knots we will be ready to put the proclamation on the approved addition.

Until then, and not before, can we begin working up a program for a CCC camp and getting a camp established for several periods of work.

We think Harry for his pictures of the new points of interest and the newspaper write-up, all of which have gone into our files for future use.--F. P.

WALNUT CANYON

By Paul Beaubien, junior park
archeologist, Flagstaff, Ariz.

Visitors this month, 908; total since October 1, 3,117.

Parties contacted include 150 at museum, 95 at the Observation Point, and 53 at both the museum and Observation Point. Visitors not contacted; 232.

There were 276 parties to clock for SWM Stencil #16 and Educational Form 8320. To do this accurately on good travel days would take a ranger's full time. He would need a motorcycle to get from the museum to the cliff dwellings, to the Observation Point, to the picnic area. And this is only April, with the travel months to come.

Park Service visitors were H. Miller, L. Gastellum, A. Keuhl, H. Cornell, M. McCollm, Montgomery, J. Diehl, and D. King.

April 18, some 40-odd CCC boys arrived to prepare a camp for the others that are to come. Work on the camp is moving surprisingly fast.

From the diary: Floors of two rooms in the ranger station were varnished, and one was waxed. Some 25 flowering plants were collected. Some Agave seeds, collected about one mile east of the Observation Point, have been planted. The picnic tables were repaired with the hope that they would last until the CCC boys can make others. Garbage cans were purchased, and painted. Pictures of the Santa Fe dam in Walnut Canyon were taken, and the negatives sent to Headquarters. Dr. Little, of the National Forest Service, donated some Juniper and Pinyon seedlings. As these only grow about two inches a year, it will be a long time before they hide any construction work.

Went to Wupatki the 22nd, and found that 227 visitors had registered at Sunset Crater, 58 at Wupatki, and 169 at Citadel. That evening I received a hot tip about pot-hunters working at Crack-in-Rock Ruin, so I returned to Wupatki the next day. I found no evidence of recent pot-hunting, but did see a wonderful ruin. It is rather small, but, because of some unusual features, I believe it would arouse as much visitor interest as any ruin I've ever seen.

*****SWM*****

Just to keep the record straight, we might add a note to tell Paul that no one expects perfection in reporting visitors from a lone post job. We are just doing the best we can in getting visitor figures. The figures we get are much better than nothing so we would be foolish to say we would take nothing because we couldn't have perfection.

Paul's figures this month show that his average museum talk was

WALNUT CANYON (CONT.)

23.0 minutes. Last month the average was 24.7. The month before it was 22.9. No doubt there are large errors in reporting the time of individual parties now and then but the errors must offset themselves in a total of several hundred parties, else why would that time hang so steadily around the same point month after month? Can we not, then, say that a good man on the job at Walnut should handle his parties in the museum in about 22 minutes, including errors. Then if we changed men and the new man at Walnut showed an average time of 12 minutes in the museum, including errors, would we not have an indication that there was something wrong with the man? Can we not compare Walnut time with Casa Grande time, knowing that there may be minor errors in both, but knowing also that 10% of error one way or the other will not invalidate the conclusions we may draw?--F. P.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 65; total since October 1, 349.

Here I am sending another monthly report in before I even receive the last one sent in, but we show such a decided increase over April a year ago that I cannot wait to get it to you. Visitors for the month total 65 compared to four a year ago. Yesterday we had visitors from Arizona, New Mexico, Utah, Minnesota; and the day before from England, New York, Kansas, and Texas, so you see we are doing pretty good for so early in the season. Our weather has been very good. The last part of March was typical of Winter's last struggles, and, with the exception of a few dusty days, the weather has been ideal.

The early part of April was spent on equipment and equipment records, and as a result I almost pray that Hugh will drop in that I might spring the new shed, its contents, and my equipment record on him. I still smart from some of his lectures on equipment, but he who laughs last laughs best or something to that effect, and I wish Hugh could see that once in a while his lectures do actually take root. More frequent inspections were made this month. Under separate cover I am submitting a request in regard to better protection, not so much from the human element as from stock.

Through the cooperation of Cozy, we have installed his grease rack over near the pump house where we can use it to wash and grease cars. This will be a big help in the looks of our equipment. Another Government agency granted us permission to salvage a couple of old tent houses, along with an old loading pit. The tent houses give us some needed lumber and the heavy timbers in the loading pit supply a need that is frequent and often urgent. We appreciate this material very much.

DE CHELLY (CONT.)

Three trips were made away from the monument--two official and one personal. A trip to Gallup for supplies and another to Aztec Ruins in answer to an SOS sent out by Cal. for help on his Easter sunrise service. Cal. had some crowd and, Boss, he insisted that I report for duty at 4:00 a. m. Easter morning. Is that any way to treat a guest helper? Anyway, it was a grand affair, a splendid crowd, and again my congratulations to Aztec and Cal. Miller. Cal. is making Aztec appreciate me more every day--appreciate that I am in Arizona.

Dale King and his wife were in for a night and part of a day and we enjoyed meeting Mrs. King and talking with them. Dale promised me a visit from Natt Dodge but so far he has not appeared and he is long past due. Dale also tried to help me on these 8720's, but I expect they will stand some close checking with my SWM 16's. I cannot for the life of me see why we should have over 100 per cent contacted visitors. Making as many contacts with the same parties as we sometimes do here, we will become so efficient on the percentage basis that it will be alarming. So now that I have warned you, don't be surprised if we show up some day with about 1,000 per cent contacts on some parties.

We experienced a little trouble with water meters this month, and the motor on the pump jumped some cogs, making it necessary to order a complete governor assembly, but that fixed up the motor, and we have fixed the concession meter and are ready to go again. It was necessary to wire Kansas City on pump parts.

Speaking of Kansas City, we had a staff writer of the Kansas City Star with us for a nice visit. He had been down with you folks and spoke very highly of your treatment of him. He promised us a copy of his article on de Chelly so I will pass it on to you upon its receipt.

These spring days are bringing us worlds of color, and life. Peach orchards in bloom, trees in bud, acres of tilled soil, hundreds of lambs, kid goats, Navajos themselves in the Canyons again, all of which make de Chelly a paradise and a real inspiration.

We are looking forward to a summer exceptional in many respects. The Geological Survey will be with us again for a time. The concessionaire is getting many requests about the canyon, and while I do not get Tommy and Pete again this summer, you have allotted me two wonderful boys, and de Chelly is all set for a banner season.

Expecting our Regional Engineer early in May, I am going over water and sewer systems in detail, putting them in tip top shape in order that he might see them at their best. The sewer system, at best, is certainly nothing to brag about. Several other matters are in need of the attention of an engineer and we will be glad to see him.

I am informed that a native of Chaco took upon himself one of

DE CHELLY (CONT.)

Aztec's most popular young ladies. Any thing they get from Aztec will help the place and, Mac, Congratulations! Carolie, "Well, Bonito does have some nice masonry, and Mac is getting a good ranger in there pretty soon that can tell you all about the place". Anyway, the newlyweds have a standing invitation to make de Chelly a visit.

Just received word that I might list some projects for consideration and I will let you off now, to prepare to bombard you again with a lot more chatter from de Chelly.

*****SWM*****

Johnwill makes a very common error on this contact business when he thinks the percentage of visitors contacted makes a fine record if it shows around 215 per cent. Our idea of perfection in this matter is to make 100 per cent contact with all visitors on each station or trip. Thus, if you furnish a ruins trip, a museum talk, an observation point, and a guided nature trail, we would expect you, with these four trips or units, to turn in a 400 per cent contact with your visitors at the end of the month. A 215 per cent contact at such a place, providing you had enough personnel, would be cause for criticism, not for congratulation. Percentage of contact, as we use the term, does not tell you a thing until you know what the ideal contact may be. Then those two do not tell you anything until you know the personnel situation. It is quite clear Paul Beaubien isn't going to make his ideal 200 per cent contact on his field trip and museum trip working alone. When he shows 115 per cent contact on his two units of service he is making a better record than Casa Grande is when it shows 160 per cent contact on its two units of service.

It will be seen from the above that if any of you try to swell up your percentage of contact by adding another unit of service, you had better think twice as to what chance you have of putting 100 per cent of your visitors through this new unit of service. If Johnwill, having a 215 per cent contact on four units of service, should add another unit, he might then get only 230 per cent contact on a possible 500 per cent--a poorer record than he had before.--F. P.

*****SWM*****

MONTEZUA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 1,107; total since October 1, 4,395.

VISITOR STATISTICS

Visitors this month	- - - - - 1,107	Total states	- - - - - 31
Cars	- - - - - 299	Foreign countries	- - - - - 4
Horseback riders	- - - - - 5	Field trips	- - - - - 235

MONTEZUMA CASTLE (CONT.)

Field trips

Attended- - - - -	801	Time (minutes)- - - - -	2,558*
Time (minutes)- - - - -	8,900	Average attended- - - - -	3.2*
Average attended- - - - -	3.4	Average time (minutes)- - - - -	16.3*
Average time (minutes)- - - - -	37.8	Unattended- - - - -	129
<u>Museum talks</u> - - - - -	156*	Total contact - - - - -	1,305
Attended- - - - -	504*	Per cent contact- - - - -	117

SPECIAL VISITORS

Park Service: April 2 - Jack Diehl, regional engineer, and H. A. Montgomery, assistant engineer, were in for a brief inspection trip and to talk over the proposed road oiling and Castle stabilization.

March 29 - Al Bicknell, custodian of Casa Grande National Monument, was in for three hours to deliver some fence materials and pick up some tile. We kept him awake through the ruins, although he was dead for sleep.

April 19 - A. E. Underhill, general foreman of road surfacing, arrived, to remain until our oil surfacing job is finished.

April 22 - J. H. Tovrea, assistant engineer, arrived to stake out the road for surfacing.

Newsworthy visitors: March 28 - Mr. and Mrs. Fred G. Steenberg dropped by to see us for a few hours. He needs no introduction as the writer of that excellent article on Montezuma Castle which appeared in the November, 1937, issue of the Monthly Report Supplement. We enjoyed his visit very much, and look forward to another one.

March 30 - M. B. Perkins, and G. H. Anderson, of the Universal Press Agency, were very interested visitors.

April 1 - E. A. Peterson, principal of the Pine High School, was in with 30 highschool students to see the Castle.

April 3 - Vincenzo Petrullo, consultant on scientific research work for W.P.A. in Washington, D. C., was in for a hurried but interested trip, in company with --

Miss Jane Ryder, state director of Women's and Professional Projects of W.P.A. and state director of the N.Y.A., and Robert Slover, field supervisor of historical records, W.P.A.

April 4 - Frank Zell Heuston, a New York portrait painter, was very much interested.

April 8 - Dr. and Mrs. Bransford Lewis, of St. Louis, Missouri, were

MONTEZUMA CASTLE (CONT.)

in. Dr. Lewis is professor emeritus of urology at St. Louis University. Accompanying the Lewises was Miss Grace M. Sparkes, Yavapai County immigration commissioner, and long an ardent booster for Montezuma Castle and vicinity.

April 9 - Dr. and Mrs. M. M. Ellis, of Missouri University, were very interested. Dr. Ellis is professor of physiology at the university, and is also in charge of interior fisheries investigations for the Bureau of Fisheries.

April 10 - Mr. and Mrs. M. E. Diemer, of Madison, Wisconsin, were visitors. He is director of the Diemer Photographic Laboratories, Madison, Wisconsin, and has had remarkable success in photographing plants and insects.

Mr. and Mrs. J. E. Fast were in and out -- a very brief stay -- looking for the Jennings, who had left an hour earlier for Georgia.

April 12 - Redlands University, Redlands, California, sent 26 geology students, who had an interesting visit to Montezuma Castle.

April 14 - Harold M. Weaver, instructor in Geology, and 30 geology students, from Reedley Union High School and Junior College, Reedley, California, made an early morning visit to the Castle.

April 17 - Lieut. Kenneth S. Cox and 90 boys from the Sedona CCC camp arrived in four trucks and spent the afternoon (Easter Sunday) seeing the Castle.

April 21 - Dr. Harold S. Palmer, professor of geology, University of Hawaii, was an exceptionally interested visitor.

Bill Eaton and 20 "dudes" were in for a picnic, the last picnic of their winter season here.

WEATHER AND ROADS

Precipitation (inches) - - - - -	.23	Min. temp. - - - - -	26
Days cloudy - - - - -	4	Mean Max. - - - - -	74.54
Days partly cloudy - - - - -	4	Mean Min. - - - - -	39.19
Max. temp. - - - - -	-93		

Weather has been so conventional this month there is little comment to make about it. We had our customary winds during the first half of the period, and a rapid rise in temperature, followed by a late frost, which did damage to fruit in the valley. The creek (Beaver Creek) quit running below the Castle a bit earlier than usual, on April 16, but started running again at once as a result of a snow in the mountains, and is now about to go dry again. We have a marvelous

MONTEZUMA CASTLE (CONT.)

swimming hole in front of the museum now, about seven feet deep, and quite clean, which is interesting the personnel as well as the picnickers.

The Apache Trail is reported to be in good shape. The Stoneman Lake road to Flagstaff is passable but reported rough for 15 miles, and we are having almost no through travel on it. The Oak Creek Canyon Road is getting in good shape again, and is now oiled from Sedona to Cottonwood. Construction is still going on between Highway 79 and Cornville, so that road is rough. The bridge over Oak Creek (reported closed last month) is repaired and carrying travel. The road from Cottonwood via Camp Verde is corrugated and rough, but is now having some delayed maintenance work done on it.

ACCESSIONS

The H. H. Robertson Company, of Los Angeles, California, gave us a new museum case, constructed of angle iron and double strength glass. It has not been assembled yet, as we have to obtain some waterproof cement and must grind down the metal clamps to hold the glass. This makes a total of one regulation type flat top museum case for this monument.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

A fence was built around the east half of the circular yard to the Custodian's house. This was to keep cattle out of a botanical garden we are starting.

A rustic open air sleeping porch was built against the north side of the custodian's house so we can sleep on hot summer nights. This residence becomes exceedingly hot inside on summer days, and when nights are so hot a person can't sleep, his daytime efficiency is impaired.

Three warning signs were made and installed in weak portions of the Castle. We experimented with these signs, using no paint, but burning the letters with a heated metal point. These signs, when finished, were linseeded and installed, and look very nice.

Assistant Engineer Tovrea with a chainman and two assistants is staking out our entrance in preparation for oiling. The grading and oiling are expected to be accomplished in the next four weeks.

PERSONNEL

On the evening of April 10, Jesse and Jane Jennings left this monument and headed by auto for Macon, Georgia, where Jesse is to take up duties as Junior Park Archaeologist at Ocmulgee National Monument. We miss the Jennings. They are good folks.

MONTEZUMA CASTLE (CONT.)

On the morning of April 12, Edwin C. Alberts arrived to take up his duties as ranger. Ed. is getting along fine, and is not losing weight on his own cooking.

People choose the most inopportune times to get sick. The custodian waited until Jesse Jennings had been gone a day, and then went to bed with a high fever. This was while he was holding down the monument alone, waiting for the arrival of Ranger Alberts. It was also during Easter vacation. It was also on the eve of the expected arrival of a large party of geology students. The following day, it being an emergency situation, Norman Jackson relieved him, and upon the arrival of Mr. Alberts started him in on the guide routine. After three days in bed, the custodian was all right again.

NATURE NOTES

We have had little opportunity this month to get out and see what the wild animals are doing.

The rock squirrels, correctly called Ground Gray Squirrel, are very numerous once again.

The cottontail rabbits still keep the grass trimmed in our yard.

On March 31, Betty found a big rat nest in the washing machine. Now this sounded pretty bad to me, so with customary tact I said "Surely you don't want me to put in the monthly report how seldom you wash, do you?" "Never mind" she said, "I know that nest was built between Monday and Thursday."

April 1. Jane Jennings saw a porcupine on the monument.

Lizards are as numerous as ever, which is to say, in abundance. Very few snakes have been seen on the monument, and no rattlesnakes, although rattlesnakes have been out in this district for two weeks. On April 19, in some vines at the back of the house, we saw a young bullsnake (*Pituophis sayi*) about 14 inches long, which looked like it had swallowed a pullet egg.

Humpback Suckers, once plentiful in waters of Beaver Creek and the Verde River, are becoming rare. In fact, they may be entirely extinct in Beaver Creek, although a few are caught in the river. I have not seen a Humpback in Beaver Creek for about 16 years.

Jess Haydon, living in Camp Verde, caught two Humpbacks on April 16, and gave them to us. I had hopes of stuffing one for the museum. But the following day was Sunday, and in trying to do a hasty job, and not really knowing how to do it anyway, I botched it. However, we got an excellent photograph of one of the fish, and at least have that much

MONTEZUMA CASTLE (CONT.)

record of them. We are saving the skulls, for what they may be worth.

We are experimenting with the east half of our yard for a botanical garden. For several months we have been digging up small specimens of a number of different varieties of plants native to the monument and planting them there. Some of these we obtained evidently too late in the spring, as they died. Now we have an idea which might be useful to other field men who are interested in such gardens.

We have made and painted red a number of slender stakes. Each stake has a number on it, in India Ink. In a notebook we have these numbers jotted down. When we go on a Nature walk and see an interesting plant which we would like to plant in our garden, but figure the season is wrong for transplanting, we drive a stake by it, and jot down the name or description of the plant by number in the notebook. Then, when winter comes, and we wish to do some planting, we can find our plants by these red stakes, even though they have lost all their foliage and most identifying characteristics. Then we know what we are planting, and know where to find what we want to plant.

Any visitors who are interested in botany are interested to see our beginning of a botanical garden, and if it works out all right it might get to be a pretty good thing.

The Orange Mallows broke into blossom ten days ago. A penstemon growing by our doorstep was all over blossoms a week ago. Also in the last week some of the greasewoods (*Covillea glutinosa*) have come into blossom.

One plant puzzles us a bit. It is the algerita, (*Berberis Fremontii*) and the puzzle is its blooming habits. Last year we did not see a single blossom on an algerita. This year all of them apparently are bursting in one glorious riot of yellow blossoms. They started blooming two months ago.

For the report on birds at Montezuma Castle see Betty Jackson's report, appended.

GENERAL

Travel has shown a substantial increase over that of the last two years. This is due mainly to the large attendance in special groups this month.

Our miniature camp ground is being well patronized. People like it, but wish there was more of it.

On March 28, the custodian attended a meeting of the Camp Verde Game Protective Association, and gave a five minute talk on conservation.

MONTEZUMA CASTLE (CONT.)

It was the first of these occasional meetings he had attended, and he was surprised to find such a large gathering. It is gratifying to find local people becoming so alert over game problems. Needless to say, he joined the organization and will attend future meetings.

During the last few days we have been signing on men for three or four weeks work on a three quarter mile oil surfacing project for our entrance road. It is interesting to note that over twice as many men have applied as we have work for. This is an indication of considerable unemployment in this valley since the smelters have curtailed output to a minimum.

In our visitor statistics please note that some figures are marked with asterisks. This means those figures are partly guess work. Our contact sheet breaks down on peak days. On Easter Sunday we had 207 people. Alberts was able to keep his contacts straight, as he was in the Castle all afternoon, when the crowd was heaviest, but the custodian, dividing his time between museum talks and registering and directing people, got completely lost in a maze of figures and had to throw up contact data for the afternoon. It was a question either of talking to people and letting the statistics go to put, or doing nothing but get statistics. It seemed more important to contact the people, and give them talks.

Since we are now having to restrict parties in the Castle to nine people besides the guide, this means that on busy days many people have to wait for sometimes as much as an hour before they can go in. They did not complain about this, but on Easter Sunday, when about 50 afternoon visitors did not get to go up at all, we were surprised not to hear some harsh comments. However, most of them were local people, and they can go up any time. This unfortunate jam occurred because 100 CCC boys arrived at 2:00 p. m. Although I have asked local commanding officers when possible not to bring the boys on Sunday, but to come on Saturday instead, so as to inconvenience the least number of people, in this case the C. O. was up against it, and had no other choice but to come on Easter Sunday. Well, it took all afternoon to get those 100 boys through the Castle. We kept everything open until supper time, and had to sign off and eat to keep from starving.

I have given all this information about our Easter Sunday problem to indicate how serious a proposition it is to give satisfactory service in the Castle on busy days. If the Castle is to be kept open for many more years, and travel increases the way it has in the past ten, it is going to be like crowding 100 people around a knot hole in the fence to see the ball game. We are not worried as far as the work goes; we are doing what we can, and figuring that is all we can do. But the future?

*****SWM*****

MONTEZUMA CASTLE (CONT.)

BIRDS AT MONTEZUMA CASTLE

By Betty Jackson.

BIRDS OBSERVED IN APRIL:

Arizona Cardinal	Say Phoebe
Coot	Gambel Quail
Mourning Dove	American Raven
Immature Bald Eagle	Road Runner
House Finch	Gambel Sparrow
Red-shafted Flicker	Western Robin
Ash-throated Flycatcher	Sparrow (sp?)
Cooper Hawk	Desert Black-throated Sparrow
Desert Sparrow Hawk	Sparrow (sp?)
Red-tail Hawk	Cliff Swallow
Hummingbird (sp?)	Swallow (sp?)
Oregon Junco	Crissal Thrasher
Killdeer	Hermit Thrush
Arkansas Kingbird	Turkey Vulture
Cassin Kingbird	Audubon Warbler
Belted Kingfisher (heard)	Rocky Mt. Orange-crowned Warbler.
Ashy Ruby-crowned Kinglet	Sonora (?) Yellow Warbler
American Merganser	Cactus Woodpecker
Arizona Hooded Oriole	Canyon Wren
Great Horned Owl	Baird Bewick Wren
Black Phoebe	Wren (sp?)

This "Bald Eagle" has me worried. We've seen him several times this month, and fairly close, so that I know what he looks like. But he doesn't look like a Bald Eagle, and he looks even less like any other bird. So I really think it is an immature Bald Eagle, even if Bailey's description doesn't jibe in every particular.

The Desert Sparrow Hawk is nesting in an old flicker hole in the big sycamore by the tent. Mr. Flicker resented the intrusion considerably, but has now made himself a lovely new hole out over the creek in the same tree. I suppose Mrs. Flicker has been there too, but I haven't seen her to be sure of it.

That tree is full of nests. This bird I'm calling the Rocky Mountain Orange-crowned Warbler started his nest there a month ago. I wish Natt Dodge had made his proposed visit here. He might have been able to tell me whether I'm right or not on this bird.

My records this month are full of question marks, but that's the only way I know to give complete information, and not have it awfully inaccurate.

There's another nest in the same tree, brand new, but I haven't yet seen the occupants. It's quite a large one.

MONTEZUMA CASTLE (CONT.)

Jane says the Baird Bewick Wrens are nesting there, too.

It seems surprising to me, but a pair of House Finches have set up housekeeping in a knot-hole there. They probably have eggs by now, considering that they started the nest fully a month ago.

There are two more House Finch nests that I know of. One is in some flood drift caught in a hackberry (*Celtis reticulata*) two or three hundred feet east of the tent. It's about five feet from the ground. The other is high in a sycamore down in front of the Castle in the middle of a big bunch of mistletoe. Mrs. Finch carries material for the nest from all directions, and Mr. Finch flies along behind, cheering her with his bubbling song. Then while she fits it into the nest, he sits above her and boasts to all the world.

The Black Phoebe is nesting up the creek somewhere, according to Jane Jennings, but she didn't locate the spot before she left, and I haven't gotten up that way at all this month.

On April 1, Jane saw the cardinals mating. She thinks they have a nest in the mesquite brush between the tent and the road. It seems likely, because he sings there every morning.

On April 10, the Arizona Hooded Oriole and his wife returned. We are mighty glad to see them back. They apparently decided to move into a new suburb this year, for I saw their nest yesterday in another sycamore a hundred yards or so up the creek.

The Ash-throated Flycatcher and his wife are back. I first saw them April 15, and they were mating then.

Also on the 15th, I saw between 30 and 50 Audubon Warblers. They eat the seeds in the sycamore balls and hop around in the Water Moodys (*Baccharis glutinosa*) and the Burro Brush (*Hymenoclea mongyra*) and apparently even find things to interest them in the Hackberries.

I'm surprised to see the Juncos and Gambel Sparrows here still. I think the latter are nesting here, one pair down in front of the Castle, another by the garage.

Both species of kingbirds are here now. The Cassin Kingbirds arrived, as far as I know, on April 15. I didn't see the Arkansas Kingbirds, to be sure of the identification, till the 23rd. There are three of the former and five of the latter, and they certainly split the air with their noise. It seems to be a continuous game of tag, with such screeching and chattering, and time out now and then to rest or to catch a bug.

The Cassin Kingbirds are reconditioning their last-year's nest over

MONTEZUMA CASTLE (CONT.)

the syzygy.

One of my unidentified sparrows is a nice quiet fellow that is always being startled out from under-foot where he has been picking about in the leaves and grass. He is very striped all over, but I give up on identifying him.

Another is one with a white-tipped fan tail. That's all I could make sure of, so he also is called "Sparrow sp."

Here are two things you may not believe. April 16, Earl and I were waked from sound slumber by a riveter working on tin. Looking out the window we saw Mr. Flicker on top of a gasoline can, either gloating in the noise, or really trying to get in. And when we went out, there wasn't a mark on the can! We heard the same noise last year, coming from the tool shed which is now torn down, and figured he was sharpening his bill. But as we watched him, he was striking directly in, not a glancing blow at all.

The other strange thing happened that same night. A thrasher (or possibly a mockingbird) was singing his heart out every time I woke up in the night. It was full moonlight, so I can't blame him, but it sort of explodes this theory about the "little birdies that go to bed with the sun."

Incidentally, the thrasher is nesting somewhere near the garage, but I haven't located his home yet.

The hummingbirds must have a nest by now, because on the 16th they were gathering lint from the cotton-covered wires that support our vines. The female comes every morning and evening to sip from our pentstemon.

The American Mergansers spend most of their time in the big hole below the Castle, with occasional grunting excursions over our house and up the creek. I wonder if they'll have another brood this year.

As for the coot, I don't know why he doesn't get him a wife. He's been here alone all the time.

The Say Phoebe's haven't yet decided on their quarters for this year. She seems in favor of the old spot above our front door, but he has other ideas.

The Hermit Thrush record is based purely on ear this time. I saw him last year, but this year I haven't. I heard him, however, on April 11 and 15, just at evening, and I'm pretty sure I know that song.

Ed Alberts thinks he heard a Kingfisher the other day, and though he professes to know nothing about birds, I don't doubt that he did.

MONTEZUMA CASTLE (CONT.)

since they've been around on and off all year.

I miss Jane's helpful observations from the tent, but maybe it's just as well she's gone this month, or you'd have to throw out my report on account of its length.

By the way, I wish Mr. Harkins would write me a post card (just a penny) telling me which of my birds he got as repeats. I got attached to those birds, especially Juncos 34 - 176923 and - 24, and the Pygmy Nuthatches.

Must sign off for this month.

*****SWM*****

This is another interesting report from the Jacksons at the Castle.

Don't worry too much about the failure of SWM of our reports, Earl, and of course you did the right thing to take care of the visitors and let the form go when there was any conflict. The visitor comes just after the protection of your ruin and before all forms or reports. All we want is to get as much accurate information about visitors as we can without disturbing the visitors or upsetting things too much. There will be minor errors, of course, and the statistics will not be complete, but they are not without interest and will serve our purpose very well. F.P.

*****SWM*****

TUMACACORI

By Louis R. Caywood, Tucson, Arizona,
Box 2225, Tucson, Arizona.

Visitors this month 2,571; total since October 1, 10,236.

April has been a month of uncertain weather. There have been rains, frosts, and excessive heat, ideal days and wretched, windy days. Fortunately, the three days of Holy Week just before Easter were mild and spring-like. The days Tom was here working in the mission were windy with a perpetual dust storm inside the church.

Because of the Easter ceremonies on April 13, 14, 15, and 16, our visitor count is very high, but visitor contacts are low. The total number of visitors amounted to 2,571 of which 1,168 were guided through the mission and 1,403 were not. Many of the latter, however, were contacted, but only for a short time to exchange courtesies. They were mainly local people who either participated in or watched the Holy Week ceremonies. These ceremonies started Wednesday night with the singing of Mass in the mission and finished about 1:00 p. m. Saturday with the burning of Judas and the repenting of the Fariseos. The mission was specially decorated and the participants were almost completely present.

TUMACACORI (CONT.)

for the four days.

During the month, several groups visited the monument. Professor Haddock of the Science Department of the Nogales High School brought a group of nine students on March 26. On April 7, who should knock on our door after dark but Woodie Spires. Woodie was liaison man for Mr. Hoover and a group of five students of the Geography Department of the Arizona State Teachers College at Tempe. They camped on the grounds that night and in the morning departed for northern Sonora to see the trincheras and some of the missions.

On April 14, 43 members of the Sierra Club of California under the direction of Mr. W. A. Van Degriфт camped overnight in the monument area adjacent to the mission. They had visited two of our monuments before arriving here and were all praising the kind treatment they had received at Casa Grande and at Chiricahua. Incidentally, they came at the time when Holy Week ceremonies were in full swing and, although they would not admit it, I am sure that they did not sleep as well as they might because the masked Fariseos were chasing ghosts and ringing cowbells most of the night. Some of the more timid spirits must have thought the Apaches were on the rampage once again. The custodian gave a 20 minute campfire talk to the group at 8:00 p. m., telling them briefly the mission history and trying to explain what the Mexicans were doing in the church. After the talk, the entire group adjourned to the church to watch the Mass which was being said by two old Mexican ladies. The next morning the Sierra Club was up bright and early ready to be shown through the mission in the daylight.

Since the return of the Sierra group to California the custodian has received a thank-you letter from one of the members which said in part, "I am back on the job, extremely busy but full of pleasant memories of my week in Arizona. I shall long remember the pleasant evening where you hold forth."

Mr. and Mrs. J. E. Fast spent Easter week with us and were very interested spectators at the ceremonies. They left en route home to Illinois after another winter spent in our great Southwest.

On April 16, 14 members of Mu Alpha Nu, archeological society, under the guidance of Dean Byron Cummings of the University of Arizona, made a special trip from Tucson to see the mission. The members of the three chapters of the society from the University of Southern California, the University of New Mexico, and the University of Arizona had attended a meeting at Tucson and included Tumacacori as a sight-seeing trip for the visiting members. Gertrude Hill, Mrs. Clara Lee Tanner, and Gordon Baldwin were among the group.

April 16 also brought Mr. and Mrs. Harry T. Getty and Miss Jean McWhirt of Tucson, Park Service enthusiasts, to the monument.

TUMACACORI (CONT.)

Park Service visitors for the month included Superintendent Pinkley, J. H. Tovrea, and Dale King of the headquarters office on April 4. Much talk resulted after seeing the first shipment of exhibits which had recently been brought over by truck from Berkeley by Nat Dodge of headquarters.

Charlie and Mary Steen deserted us for Coolidge on April 19. Gusty Brady of Florence has been given temporary employment to help out until a regular ranger is appointed.

Luis Castellum of headquarters came down on the evening of April 15 to see the Holy Week ceremonies. While here, Luis also checked the equipment inventory. The custodian was more than pleased to have this job of long standing completed.

Mr. and Mrs. McGuire of Tucson were here on the morning of April 11. Mr. McGuire is connected with the CCC at Saguaro National Monument. He is preparing a planting plan for the landscaping of Tumacacori.

Mr. and Mrs. J. H. Tovrea also stopped here on the evening of April 11 en route to Nogales. Tov supervised the starting of our mission stabilization program until April 13, laying out cement foundations in the mission for the proposed brick floor. He returned to the mission again on April 18 and 19 to continue the work. It will be some time before the bricks will be placed as none of the 8" x 12" bricks are available at Tucson. Additional work to be done on this program will be capping the cemetery wall with brick. The wall has now been cleaned off and is ready for laying up adobes preparatory to capping. Almost 1,000 adobes have been made here on the monument for this work.

A small portion of the custodian's quarters has been reroofed and two rooms have been kalsomined.

Samples of the blue and red paint from the mission were taken to Nogales where Hugo Miller assayed the samples for metal content. Very little mineral reaction showed so the possibility is that the paints are organic in origin. Mr. Miller gave the custodian a map showing the mines of this region.

On March 30 the custodian and HCWP made a trip to headquarters to talk over some of the proposed work at this monument. Lots of business was settled and we had some interesting visits with the personnel.

Birds banded this month include:

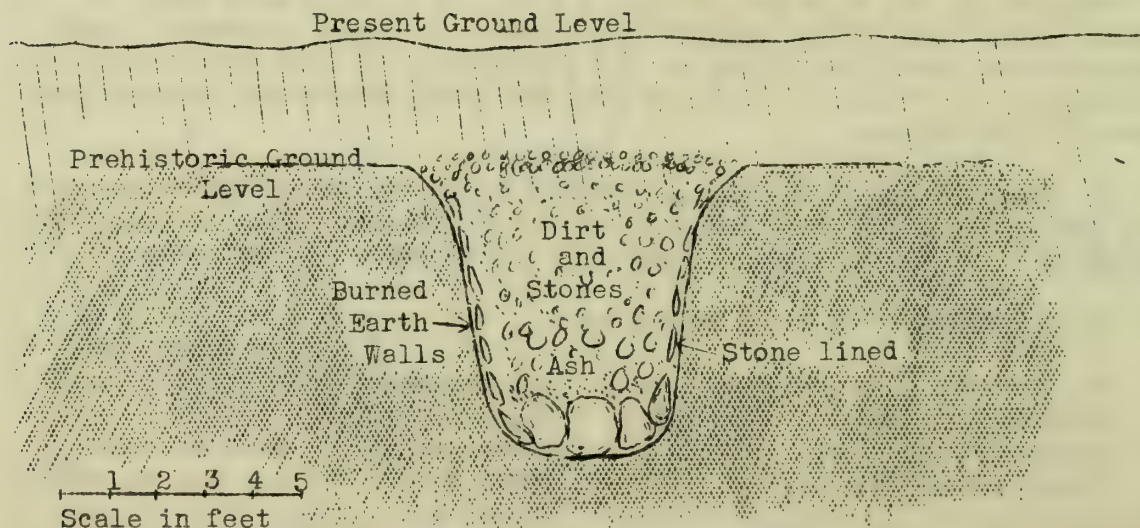
House Finch - - - - -	4	Arizona Cardinal - - - - -	3
Gambel Sparrow - - - - -	20	Cactus Wren - - - - -	1
Canyon Towhee - - - - -	1	Pyrrhuloxia - - - - -	1
Green-tailed Towhee - - - - -	2	TOTAL - - - - -	32

TUMACACORI (CONT.)

Ten bird-band returns have been taken in the last year. A recovery was a very rare bird in Arizona, the Red-eyed Cowbird, banded in Arrivaca, Arizona, on July 15, 1936, and found injured at Ruby (about 12 miles south of Arrivaca) on July 4, 1937, by Galen Moore. Another was a Say Phoebe found dead at Carmen's Store near Tubac by Mrs. C. Bartlett. It had been banded three miles away April 12, 1936, as a nestling at Tumacacori. It was found on July 13, 1937. A green-tailed Towhee banded on March 31, 1936, was retaken January 21, 1938, with no intervening record. This bird is noted as a migrant and reported rare in Arizona. In all probability it migrated north twice and returned here again. Several Gambel Quail, one Bendire Thrasher, and one Cardinal were retaken as returns.

Gambel Sparrows still are seen drinking at the bird fountain near the custodian's residence. A Thrasher with a number band on one leg and a color band on the other, one of the local birds, was seen one morning coming to drink. He landed on a piece of timber, caught his toe in a crack, fell over on his back, righted himself, and limped over to the fountain, still determined to have a drink. Thrashers are ground birds, clumsy and awkward, and seem to have many accidents. One I banded had a broken jaw which had knit so that his bills did not meet. Another was taken with a broken leg which had knit very badly, giving Mr. Thrasher a permanent limp.

While digging a pit for a gasoline tank at the southeast corner of the garage, a section of the ground was found to contain burned rocks, burned earth, and some ash. Claude Gomez, one of the laborers, dug out half of the pit under close supervision. In the top layer of the pit, which was 32 inches below the ground level, was found a mass of small burned stones. As Claude went deeper the rocks became larger until in the bottom, covered by ashes, were boulders almost too large to move out. The entire pit was lined with stones and seemingly was used as a barbecue pit at some time. No pottery was found in the pit nor vicinity.



TUMACACORI (CONT.)

AMAZONS STAGE 15 SECOND KNOCKOUT

One of the world's fastest known battles took place at Tumacacori on the afternoon of April 23. The participants were Mrs. Tarantula, hereinafter referred to as Mrs. T, and Mrs. Tarantula Hawk, hereinafter referred to as Mrs. TH. Although no enmity seems to have existed before the battle, it certainly turned out to be a grudge fight of the low order of knock-down-and-drag-out.

Mrs. T. was discovered by Custodian Caywood on the colonaded north porch of the museum building on April 22. She admitted to the custodian that she would fight anything her size, so she was placed in a glass jar with a few ants to eat to keep her in trim.

Mrs. TH was found early on the morning of April 23 looking for trouble but a little too cold to fly. She was also placed in a glass jar for safe keeping until arrangements could be made for a bout with Mrs. T.

At 2:00 p. m. with Gusty Brady and the custodian as sole onlookers, the ring was set for the fray. In one corner was Mrs. T, weight about three ounces, and in the other corner Mrs. TH, weight about one ounce. A camera was set up for action pictures. At the sound of the gong, Mrs. TH flew from her corner and with one fell swoop threw herself upon her adversary. Mrs. T, in order to protect herself, turned over on her back, grabbed one of her opponent's legs, and emitted about eight drops of poison. However, in a flash, Mrs. TH had thrown in several kidney punches with her sting and the battle was practically over. Mrs. T, in death, had a hold on the leg of Mrs. TH which was not released for about a minute. Instead of leaving the fallen foe where she was, Mrs. TH tried unsuccessfully to drag her from the ring.

To those who are unfamiliar with these insects the real truth of the matter is that Mrs. TH had been looking for Mrs. T, in order to do just what I have described, then drag her to a hole and, after depositing her in the hole, Mrs. TH would have laid her eggs in the carcass. However, this time she was unsuccessful in her efforts to drag the body away and finally in disgust abandoned it.

No photographs were taken of the actual fight, but several were taken of the tarantula hawk trying to drag the tarantula.

*****SWM*****

It was nice to hear that the Sierra Club members had a successful trip and enjoyed themselves so much. We certainly enjoyed having them the night they stopped at Casa Grande. They were lucky to get into Tumacacori on one of the nights of the Easter ceremony.

TUMACACORI (CONT.)

I think this Easter ceremony at Tumacacori is a fine thing if we can hold it in its primitive state, but that will require some positive action on our part as well as some care and forethought.

The first exhibits for the museum certainly look fine and we were all well pleased with them. We are anxious to get that museum into action and will welcome the expert from Berkeley when he comes in to set up the cases.--F. P.

*****SWM*****

TONTO

By Thomas B. Onstott, in charge,
Roosevelt, Arizona.

Visitors this month, 717; total since October 1, 3,552.

Summer is coming in with a vengeance and more and more visitors take one look up the hill and remark, "We have to hurry on", or "We can see as much from here." The weather has done more than its part to promote travel the last month, but people just don't seem to be going places around here this year. The mines in Miami laid off a great many men this last fall and winter which hurt the visitor tally here as every weekend they used to comprise a large portion of our visitors.

Last month's kick about wild flowers still holds good. There just aren't any. The rattlesnake population seemingly thrives on the climate that ruined the flowers and have started their season off in great style. Mrs. John Fast encountered the first one of the year on April 12, and the next Sunday a party of visitors met one by the trail just below the lower ruin.

The nature trail and bird banding programs had to be put off a while as I was having a great deal of trouble with my eyes. I now have glasses and am gradually getting used to them; so within the next few days things will start moving again--I hope.

Some time was devoted this month to raking rocks off the trail and approach road.

VISITORS

On April 12, Mr. and Mrs. John E. Fast kindly came up to help me get started on bird banding.

John H. Diehl and H. A. Montgomery, engineers from the Regional Office, were here on the fifth for a very short visit on the way to Casa Grande.

TONTO (CONT.)

Total visitors- - - - -	717	Attendance- - - - -	155
Total registered- - - - -	439	Average attendance- - - - -	3.7
States (including Alaska) - - -	25	Time (minutes)- - - - -	730
Foreign countries - - - - -	2	Average time (minutes)- - - -	17.6
Field trips - - - - -	86	Special parties - - - - -	1
Attendance- - - - -	324	Time (minutes)- - - - -	130
Average attendance- - - - -	3.7	Attendance- - - - -	36
Time (minutes)- - - - -	3,695	Total time on monument (est.)	12,650 min,
Average time- - - - -	42.7	No. of cars - - - - -	232
Museum trips- - - - -	41	Per cent of contact - - - - -	74

*****SWM*****

Business fell off as compared with last year and the year before. It looks as if we are in the slack season between spring and summer at Tonto.--F.P.

*****SWM*****

WHITE SANDS #2

By Tom Charles, custodian,
Alamogordo, New Mexico.

Sixty high school principals from all over the southern part of New Mexico found hand-painted pictures of White Sands at their plates, for place cards, at their annual banquet here at Alamogordo this week. The pictures were the work of Ed Perkins, an Alamogordo teacher and clever artist, who makes art his pass time.

Dr. Fred W. Emmerson, of Las Vegas who has one or two pamphlets on the flora of the White Sands, was here this week for about his fifth trip. Some years ago he took samples of the soil at White Sands to ascertain where the green plants of the sands get their nitrogen. He soon got in touch with Dr. Charles Lapman of the University of California, and they have been working the project together. After nearly three years, these gentlemen have struck a hot trail and Dr. Emmerson was back for more material. It is even possible that they may uncover a brand new kind of bacteria out here in the Sands. They at least have these facts to work on: green plants grow in the Sands where an analysis shows no nitrogen at all in the soil. This may develop into a very interesting subject.

The May issue of the National Geographic Magazine carried a full page picture of the White Sands in color.

On Easter Sunday there were approximately 2,000 people in to the Heart of the Sands; our pretense of accommodations in the way of tables and fire places and toilets was pathetic but they say it is darkest just before the dawn and we are hopeful that the picnic area will get the long-promised fireplaces and tables and shelters ere long.

CHIRICAHUA

By Frank Fish, custodian,
Douglas, Arizona.

Visitors this month, 1,050; total since October 1, 4,291.

Early in April the weather remained cold and windy, with warmer weather prevailing since Easter. A trace of snow on March 28 and a light sprinkle on April 14 accounts for the total precipitation. In general, conditions are dry, but as electrical storms do not occur at this time of the year, the only fire danger is from man-caused ones.

On April 4, Foreman Campbell, with 18 enrollees, was sent to suppress a fire south of the monument in the Coronado National Forest. Leaving here at 3:00 p. m., they had the fire controlled and were back by 9:00 p. m., turning the fire over to the District Forest Ranger for patrol. According to reports, a Mexican laborer at the nearby sawmill had some matches accidentally light in his pocket and, during the excitement, broadcast them around him but failed to notice the resulting fire.

Roads are in good condition on all approaches to the monument with the exception of five and one half miles under construction south of Elfrieda where grading operations are under way preparing for oil surfacing.

Recent reports indicate that on the re-alignment between Benson and Willcox, the turns of St. David, Dragoon, and Cochise are to be left out, thus eliminating all railroad crossings between those turns. This will shorten the present Willcox-Tucson route some six or eight miles. The contract for paving the Stein Pass section has been let.

Visitors for the month numbered 1,050, a loss of only 37 over April of last year. Of these, 257, or 25 per cent, came from out of the state. A number of large parties in school busses were in this month, namely: Willcox High School, 160 students; Safford school teachers, 51 in number; Safford seniors, 46; Sierra Club of Southern California, 41; and 32 new enrollees were guided through Echo Canyon.

VISITOR STATISTICS

	<u>Cars</u>	<u>Visitors</u>	<u>Out of State</u>
1938	215	1,050	257
1937	256	1,087	

<u>Attendance</u>	<u>Number</u>	<u>Time</u>	<u>Average Time</u>
814	103	5,700 min.	55.3 minutes.

Total stay of visitors: 54,402 minutes.

Among the visitors were Mr. and Mrs. M. E. Diemer, Madison, Wisconsin,

CHIRICAHUA (CONT.)

who very kindly entertained us with colored movies of the summer scenery in Norway, Sweden, Denmark, and Lapland, with black and white scenes of Russia.

Tom Martin, formerly with us at Bandelier, and Everett Beach were here on April 22. These gentlemen intend visiting all the monuments and parks of Arizona, New Mexico, Colorado, and Utah, by winter if possible, and those who meet them will find an interesting pair.

PARK SERVICE OFFICIALS

The following Park Service officials were here: Jack Diehl, regional engineer, H. A. Montgomery, assistant engineer, and L. V. Randau, regional coordinator.

Harry Clark, superintendent of the Douglas smelter, passed away early in April and was buried Sunday, April 3. Mr. Clark was a great booster for this area and well liked by all who knew him. The day of his burial was one of the lightest Sundays in attendance at the monument for some time.

During the month, with Ed. Riggs doing most of the work, besides furnishing the telephone, we installed a grounded circuit at Massai Point. This will be of great aid during fire season.

On April 19 I accompanied Steve to Tucson on official business and while there received two stoves from Ricknell.

Mr. Tisk of the U.S.F.S. mapped the visibility area from the Sugarloaf Lookout on the 20th. He stated the map will be available for distribution sometime next year.

This is a bit late but I desire to announce an addition at Chiricahua--Miss Eleanor Jean Stevenson, 9 pounds, C.O.D., March 2nd.

The new method of checking visitors has been started and seems better and less bothersome than to shove a big register into a car with four and five occupants.

April 22nd we moved into the new residence, with the aid of visiting relatives, although there is still a few items yet before it is completely finished.

*****SWM*****

CHIRICAHUA CCC

By Wm. Stevenson, project superintendent, NM-2-A, Douglas, Ariz.

Four hundred square yards of rock banks were sloped on Bonita Highway two and three quarters miles north of the Sugar Loaf Truck

CHIRICAHUA CCC (CONT.)

Trail intersection. Materials were used to restore the grade on fill sections where settlement has occurred and in rebuilding low cut banks where excessive width resulted from "day lighting". One hundred square yards of banks were sloped on Bonita Highway near the intersection with the powder magazine road and the materials were used to reduce the super of the curve at the administration building.

Echo Trail was maintained from Echo Point to Echo Parking Area. The trail was resurfaced and one short section of wall in Echo Park changed to clear a large cypress tree as suggested by Bill Wirt and Ward Yeager. (It was noted that the tree had not yet suffered any damaging effects).

The masonry wall around the utility area is 90 per cent complete. The stockade and gates remain to be finished.

The utility area extension is 95 per cent complete. Coarse materials from the excavation on this project have been used in the elimination of the borrow pit opposite the camp ground.

The Employee's Residence is complete except for lighting fixtures, and staining exterior wood work.

The telephone lines from headquarters to Sugar Loaf and headquarters to Paradise were maintained this month in preparation for fire season.

On April 4, Foreman Campbell and 18 enrollees assisted the Forest Service in putting out a fire which broke out near the Mason-Davies Sawmill.

Thirty two enrollees arrived April 10 to serve as replacements. However, our present company strength is only 132 and, unless more replacements are received before the next period, the projects will be seriously handicapped.

*****SWM*****

Chiricahua seems to have had about a normal month both as to its regular operation and as to the CCC camp.

As soon as we can get settled down in our new administration building and get the paved road going past the door over at White Sands, I would like to experiment with trying at White Sands to divert some of the west bound traffic off the transcontinental highways to Chiricahua. We have an ideal set-up there for a very interesting experiment--F. P.

*****SWM*****

CASA GRANDE

By A.T. Bicknell, custodian
Coolidge, Arizona.

Visitors this month, 3,823; total since October 1, 24,188.

WEATHER

Days clear- - - - -	19	Mean max. temp.- - - - -	83.9
Days partly cloudy- - - - -	8	Min. temp. - - - - -	28
Days cloudy - - - - -	4	Mean min. temp.- - - - -	43.9
Max. temp - - - - -	-100	Precipitation- - - - -	.10

Daily temperatures have been rising steadily. During the first half of the month the maximum temperatures averaged 77.5, as compared to 90.0 for the last two weeks. This rapid change has affected our visitor travel noticeably. The desert is quite dry, there having been little rain in the last six weeks, resulting in a restricted blossoming of the desert flora. Winds have prevailed from the southwest.

GENERAL

Visitor travel totaled 3,823 this month, an increase of about 200 over the same period last year. When almost 75 per cent of our visitors register from Arizona and California, it is a sure sign that the winter season is over. This month Arizona had 49 per cent, California 22 per cent, and Illinois three per cent. Other states represented by more than 20 individuals were in the following order: Missouri, Ohio, Colorado, Texas, New York, Utah, Oklahoma, Washington, and Iowa. In addition to visitors from the 44 states, Washington, D. C., Alaska, and Hawaii, there were registrations from Canada, Mexico, France, and Spain.

On Easter Sunday approximately 250 people attended the Sunrise Service held near Compound B. The various religious organizations of Coolidge participated in the service which began shortly after sunrise and continued until about seven o'clock. For the most part those who attended were local people. Afterwards, a number of them had a picnic breakfast in the picnic area.

There have been several additions to the personnel this month. Miss Irene Espinosa was employed to wash and catalog pottery in storage shelving which regular employees had not yet been able to care for because of pressure of other duties. James Holt was added to the CCC guide force so that some of the present guides could take their leave. He is doing a mighty fine job, considering that he has been here only a week.

A valuable addition to the library is the Snaketown Report from Gila Pueblo. Archeologists in the Southwest have been waiting for this report to be published, and we are very proud to say that we have

a copy.

The informational map on the Southwestern Monuments continues to be popular with the visitors. In the past month (March 27 to April 23) we distributed approximately 750 copies, and we still have to find one that has been thrown away on the monument.

Miss Espinosa who has been working on the pottery in storage has washed and catalogued 245 objects since April 4. Within the near future we shall be able to go back to the storage shed and find any particular piece within a few minutes, which is something that has been impossible heretofore. In addition the material is being catalogued in such a manner that we can determine the donor without having to refer to the individual cards. On April 7 Ranger Jones took Miss Espinosa, Mrs. Parke Soule, and Mrs. Gipe to the Gila Pueblo to give them a better idea as to the care taken with pottery in one of the foremost archeological institutions in the United States. Mrs. E. B. Sayles very kindly spent an afternoon showing how she washed, patched, and re-stored pottery. Mrs. Soule intends to take up pottery restoration as a hobby. If she follows the instructions of Mrs. Sayles, she should be doing some very nice work within the next few months.

The Pima pottery study by Junior Naturalist Dodge and Ranger Jones has been completed. The result is a full set of still pictures and a fine color movie of the process. In addition, there are specimens of the pottery in the process of manufacture, to be used in an exhibit for the museum. The basketry study is almost complete, and is the basis for a museum exhibit also. We greatly appreciate the fact that we have a photographer like Natt here to record by movies some of the fast disappearing arts of the Pima.

On April 17 several sherds of a Tularosa type were sent to Miss Nora Gladwin at Gila Pueblo for analysis. These interesting sherds were brought to us by Mr. John Fast and we are anxious to find out what can be learned from a petrographic analysis.

On April 6 Custodian Bicknell and Ranger Jones went to the town of Casa Grande to see a stone on which the Pima "maze" has been carved. This stone, according to the owner, was taken from the Superstition Mountains a number of years ago by a Pima Indian. We were unable to locate the informant.

NEWSWORTHY VISITORS

National Park Service visitors to the monument included Regional Engineer Jack Diehl and H. A. Montgomery of Santa Fe, and A. E. Underwood of the Engineering Division.

Other visitors of note included: F. R. Pleasants of the Peabody

CASA GRANDE (CONT.)

Museum at Cambridge, Massachusetts.; Dr. L. R. Jones of the University of Wisconsin; Miss Nora Gladwin and Mrs. E. B. Sayles of Gila Pueblo, Globe, Arizona; Miss Jane Rider, in charge of NYA in Arizona; Dr. V. Petrullo, administrative counsel for WPA archeological projects; and Princess Maria de Alva, formerly of Spain. On April 5 Mr. Robert Williams of Paramount Studios, El Paso, Texas, took a series of pictures of the Casa Grande which are to be used in an illustrated folder on the scenic spots of the Southwest. Other visitors of interest to the monument were Art Woodward of the Los Angeles Museum, Mr. and Mrs. William Keurath of the University of Arizona, and the well known medical authority, Dr. Morris Fishbien of Chicago, Illinois.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Total travel: 1938--3,823; 1937--3,627; 1936--3,436.

Of the 3,823 visitors to the monument, 3,168 were contacted on trips through the ruins, the museum, or both. A total of 12,638 minutes was spent guiding 357 parties through the ruins for an average time of 35.4 minutes. In the museum 5,201 minutes were spent with 242 parties for an average time of 21.5 minutes. (See "Casa Grande Visitor Statistics" under the Headquarters division of the Monthly Report).

The picnic grounds have been in use a good deal since the warmer weather has set in, almost every night there is a party there. We have counted 74 groups consisting of 968 individuals during the month. Among these groups were the following: 50 children from the Lehi School in Mesa, and 40 pupils of the general science class of the Coolidge Union High School. On April 16 a troop of Boy Scouts from Coolidge stayed overnight to be on hand to aid with the Sunrise Service. Fifty members of the National Federation of Federal Employees of Sacaton held a picnic the evening of April 21. Forty members of the Sierra Club (Los Angeles) stayed overnight and went through the ruins. On the 15th, 40 students from the Phoenix High School visited the monument.

NATURE NOTES

The monument is in full blossom now with the exception of the cacti, some of which are in bud. However, there are but few annuals in blossom due to the fact that there is very little moisture in the soil. The mesquite trees started leafing about the first of April. Now many of them are beginning to blossom. The ocotillo has just about reached its period of maximum bloom on the monument. There is an interesting phenomenon in this respect. The ocotillo first began leafing early in April, and continued to do so up until the first buds appeared around the fifteenth. The leaves then began to turn a sallow yellow color and fell off, apparently because of the lack of moisture. Now

CASA GRANDE (CONT.)

the flowers are blooming on what is otherwise a dormant plant. The only reason I can figure out for this is that the plant is conserving its moisture in order to produce the flowers.

The creosote bushes are practically covered with yellow flowers. As reported last month, the first creosote seen blossoming under natural conditions was on March 12. Maximum blooming occurred during the period between the 13th and the 20th of April. Now (the 24th) most of the flowers are turning to fuzzy white seed balls.

Many of the Hedgehog Cactus plants on the monument are in blossom. The one across from the drinking fountain near the museum is interesting. The first flower on it was reported April 14; the last blossom withered on the 23rd. In 1936 this plant blossomed on the 12th, and the last flower withered on the 24th of April. Such data as we do have would seemingly indicate that the habits of some plants do not vary a great deal from year to year. The cholla just to the east of Engineer Tovrea's office is also in blossom.

The first Gila Monster of the season was reported on April 15 by Junior Naturalist Dodge. Last year the first one reported for this vicinity was on April 18.

Three rattlesnakes, likewise the season's first, were killed by the CCC boys near the canal. A gopher snake was captured by the CCC boys on the second of this month, and photographed by the naturalists.

Last month at this time we were wondering whether or not Mrs. Owl was sitting on the nest in vain. However, on April 1 we discovered that there were four young owls in the nest, which is a record for the family here. Usually no more than three are hatched. Junior Naturalist Dodge took some movies and still pictures of them.

BIRD NOTES FROM CASA GRANDE

By G. Gilbert Philp.

Inasmuch as I have been at Casa Grande for less than two weeks, I am in no position to attempt the complete listing of our birds. However, the species encountered to date are well worthy of mention.

Few, indeed, are the persons who would not pause for a moment to look upon a nest of young birds. Being the nesting season, it is appropriate to write accordingly.

The most interesting find--a Plumbeous Gnatcatcher's nest! The deeply cup-shaped structure located in a mesquite tree, is one of the finest examples of bird architecture imaginable. It is so situated as to be shielded from the sun's warmest rays. Even though Jr. Park Naturalist Dodge and myself were within inches of the young, the male paid us little or no heed. The regular feeding schedule was not interrupted.

BIRD NOTES FROM CASA GRANDE (CONT.)

A more fearless and courageous bird I cannot imagine.

The Western Mourning Doves are with us, and nesting in numerous mesquite trees. One cannot walk far through such a grove without flushing a dove, and sending him off in his characteristic zig-zag flight; now hitting the ground with one wing, then with the other, in an attempt to decoy the intruder away. To date, I have seen only one nest with young, and this brood, Natt tells me, is the second.

Other birds found nesting here are: Ash-throated Flycatcher (in an abandoned woodpecker hole), Arizona Verdin, White-rumped Shrike, Cactus Wren, Pallid Horned Owl, (pair nesting in ruins), Say's Phoebe, (eggs abandoned), and the Rough-winged Swallows show every indication that they will nest soon. Other species are known to nest here, but to date no concrete evidence has been discovered.

Western Chipping Sparrows are common. In their company, an occasional Gambel's, Brewer's, and Western Vesper Sparrow may be seen.

Warblers are not at all plentiful, but members of three genera have been observed--the Pileolated (*Wilsonia pusilla pileolata*), the Hermit Warbler (*Dendroica occidentalis*), and Macgillivray's (*Oporornis tolmiei*).

On the monument, true hawks are not well represented at present. The Desert Sparrow, Sharp-shinned, Cooper's, and Marsh Hawk are the only four I have noted. Presumably, those species which nest in Southern Arizona have moved to more favorable sights.

To those who are following the "Check List of Birds of Casa Grande National Monument", the following should prove interesting. We are pleased to be able to add to this list a few species observed during the month of April, as follows:

Cowbird, Bronzed- - - - - *Tangarius aeneus aeneus*
Flycatcher, Ash-throated- - - *Myiarchus cinerascens cinerascens*
*Pelican, White- - - - - *Pelecanus erythrorhynchos*
Sparrow, Western Chipping - - *Spizella passerina arizonae*
Sparrow, Brewer's - - - - - *Spizella breweri breweri*
Towhee, Green-tailed- - - - - *Oberholseria chlorura*
Warbler, Hermit - - - - - *Dendroica occidentalis*
Warbler, Macgillivray's- - - - *Oporornis tolmiei*
Warbler, Pileolated - - - - - *Wilsonia pusilla pileolata*
*Seen flying over monument.

*****SWM*****

CASA GRANDE (CONT.)

CASA GRANDE CCC SIDE CAMP

By A. T. Bicknell.

Twenty man days were used on Job No. 50, Shop Construction, to apply the screen wire to the outside walls in preparation for the bitudobe plaster. Some experiments were made with this plaster and we are now waiting to determine the results. The electrical supplies for this building were purchased from the Arizona Wholesale Electric Company in Phoenix and most of them have been delivered.

On Job No. 51, Warehouse Construction, 185 man days were spent building the adobe walls up to the lintel line.

One hundred twelve man days were charged to Job No. 53, Guide and Contact Work. Enrollee Arnold left us at the end of the enrollment period and Holt was transferred to guide duty on April 16.

We spent 29 man days on Job No. 54, Clean-up. This work includes general clean-up around camp, monument, and some work on the sewer.

Seventy one man days were used on Job No. 55, Manufacturing Adobes, for the Warehouse and oil house. We had magneto trouble on the concrete mixer which slowed this work up some.

On April 16, Foreman Hobbs made a trip to Tucson to return enrollees Allen, Arrant, Folsom, Reid, Arnold, Maples, and Smith to NM-2-A for discharge. These boys were replaced by Du Bose, Scholz, Palmer, Alinez, Risinger, and Aaron. Enrollees Coyle and Eppes took advantage of the six days leave allowed at the end of the enrollment period, leaving for their home in Texas on April 23.

Our camp cess pool gave some trouble this month and it was found necessary to dig another, making it the second gallery. Earl Jackson of Montezuma Castle was kind enough to supply us with enough tile to make this connection and complete this work.

CCC camp BR-19-A was abandoned March 31, and our mess was transferred to the Veterans camp SP-6-A, with Capt. Harvey in charge.

Safety meetings have been held on Thursday of each week.

Chaplain Probert held religious services at the camp on March 27 and April 13 with good attendance.

Camp inspections were made as follows: Capt. Harvey on the 29th of March and April 8th; on the 2nd, Lt. Lee, retiring Commanding Officer of Camp NM-2-A, and the new Commander Lt. Wilson; Assistant Supt. Miller and Mr. Cronyn the 8th; Educational Advisor Beaty on the 10th; Acting Project Supt. Kragge the 12th; Project Supt. Stevenson the 16th; and Supt. Pinkley and Assistant Supt. Miller on the 15th.

CASA GRANDE (CONT.)
THE DESERT TRAIL

By David J. Jones, park ranger

Our Desert Trail has been in operation for about a month now and shows definite possibilities of becoming a success. We believe that it is something unique in the way of self-guiding nature trails. It consists of a 20 minute circle walk by way of the Ball Court and Compound B. Along the trail, points of interest are marked with numbered posts. The interested visitor is given a mimeographed pamphlet at the office. As he comes to each numbered post, he can find a discussion of the particular feature encountered there under a corresponding number in the pamphlet. For example, at Station 1 there is a dense stand of Creosote Bush and Salt Bush. It is a strategic point to bring out the fact that more than half of the desert in Arizona is covered with this type of vegetation, and that it is widely distributed simply because it has been able to adapt itself better to the desert's requirements. In addition there is a brief discussion of its uses by the modern Pima. At other stations we deal with birds, animals, and with archeology.

There are three distinct advantages to having a pamphlet for the trail instead of small signs. In the first place, we can provide a great deal more information. Secondly, we have a check on the number of people who use the trail, and can secure their reactions to it. This is important to us since we do not regard it as a finished product, but one which will have to be changed according to the suggestions of those who use it. Thirdly, we can alter the information to meet the season, changes in botanical nomenclature, and the subjects we wish to highlight. Permanent signs make for a frozen trail.

Just how successful we are with the present trail is a question. We did not finish it soon enough to make a real test on the visitors before the hot weather set in. It is our intention to appeal only to the interested individual. Up to the present time there have been about 25 groups over the trail. They seem to be very enthusiastic over it, at least enough to ask whether or not they may keep the pamphlet. While the real test will have to wait until next winter, I believe that we can make several improvements before then.

It seems to me that we could improve upon the manner in which we present our material. There should be a definite theme to the pamphlet, one which would leave the visitor with one major impression, instead of a number of minor ones. Why not try to bring forth a picture of the exacting requirements of the desert and how the plants have been able to meet these demands? In this way our visitors could get a good idea of the conditions prehistoric man had to face here in the desert in order to live successfully.

Most of the plant life is encountered in the first part of the trail. At each station, we could show how that particular plant adapted itself to the desert. It would be best to give only one main idea about

THE DESERT TRAIL, CASA GRANDE (CONT.)

a plant, instead of a summary of its characteristics. Shreve of the Desert Laboratory does this very nicely, and I believe we could follow his style to advantage.

By the time a visitor reaches Compound B, he should have a pretty good idea of the desert itself. Then, instead of telling about a ruin of which we know very little for certain, we could go into generalities. Show how the Hohokam had to settle in the broad plains in order to cultivate by irrigation, show where the canal for the Casa Grande was located. In other words, my idea is that we should make a brief summary of the talk we give in the ruins. The development of the caliche wall as an adaptation to environment would also be interesting here and would serve as one of the ties between the trail and the museum--when we develop our museum a bit further.

The sections on the birds and mammals has proven quite successful. I did not realize that it would be possible for the visitors to identify the common birds from a brief description. They seem to be able to, however.

A number of the visitors have suggested that we have a longer trail. This could be easily done by making a spur off the present trail which would take the visitor to one of the other ruins. We could arrange it so that he would pass through a mesquite bosque, for example, where he would be likely to see more of the birds and mammals. I do not think it would be necessary to develop detailed stations, but attempt to drive home some of the principles we expound in the pamphlet.

Finally I have noticed that there is a tendency on the part of the visitor to put the pamphlet in his pocket with the intention of reading it later--after he has left the monument. One fellow in particular said that he walked over the trail hurriedly without paying any attention to the pamphlet. Accidentally the pamphlet opened to the station he was at, he became interested, and spent an hour more than he intended on the trail. To counteract this, why don't we put sort of a "teaser" at each post? For example, at the Station 1, "Notice how the creosote bush has adapted itself to the desert by developing a "varnish" on the leaf. See page "___" in the guide pamphlet." This idea, however, should not be carried too far or we shall defeat our purpose.

*****SWM*****

CAPULIN MOUNTAIN

By Homer J. Farr, custodian,
Capulin, New Mexico.

Visitors this month, 1,100; total since October 1, 4,700.

We have had approximately 1,100 visitors this month. There have been a half dozen light snows, but the road has been kept clear almost

CAPULIN MOUNTAIN (CONT.)

every day and travelers seem to be anxious even to buck the snow to get to the top of Capulin Mountain.

Weather conditions have been rather bad most of the month, but we have had no real big snow. On the first we had a two inch snow and a hard wind from the north. It was the worst blizzard we had had all winter up to that date. The custodian spent the third, fourth, and fifth in bed with the flu or some of its undesirable kinfolk.

On the sixth, seventh, and eighth we had the worst blizzard this country has known for fifty years. While we did not have much snow, we did have three days and nights of wind that were very disagreeable and cold, the thermometer reaching eight above zero which is a record for April in this country.

Road conditions have been only fair in the monument all winter and, while there has been no great deep snow, there has been plenty of storms. Faller rock and lava in the road has put it really in bad condition, but motorists have been persistent in making the grade, and we have had more than the usual number of visitors.

We have more moisture than we have had for many years and, of course, we expect a splendid crop of flowers and grasses. We have a nice lot of deer now but they are causing some damage to the road as they are always kicking loose rock and lava that falls in the road. Our crop of summer birds did not leave the monument this winter, and our large blue jays and robins are very plentiful now.

*****SWM*****

BANDELIER

By C. G. Harkins, custodian, Box
669, Santa Fe, New Mexico.

Visitors this month, 845; total since October 1, 3,942.

As a whole, the month of April has been very good. The weather has been dry and windy, travel has been good, especially on Sundays, and numerous parties have picnicked in the camp grounds. Our roads, however, are dusty and exceptionally rough from the Otowi section out to the highway at Pojuaque. Easter Sunday was the date for dances in all the Indian Pueblos. The occasion was the Spring Corn Dance, beginning on Sunday and lasting through Wednesday.

ADMINISTRATION

An official trip was made to Creede, Colorado, with Mr. Frederick Simpich, assistant editor of the National Geographic Magazine. Mr. Simpich is gathering material for a story of the Rio Grande River from its source to the Gulf of Mexico. Five days were spent in the company of Mr. Simpich; leaving Santa Fe on Thursday, March 31, and

BANDELIER (CONT.)

returning to Bandelier on Tuesday morning, April 5.

WEATHER

Days clear- - - - -	10	Mean Maximum- - - - -	64.65
Days partly cloudy- - - - -	11	Mean Minimum- - - - -	30.26
Days Cloudy - - - - -	9	Mean- - - - -	47.45
Maximum Temperature - - - - -	81	Range - - - - -	32.2
Minimum Temperature - - - - -	14	Precipitation - - - - -	.15

VISITORS

Under this heading comes one of our more prominent visitors; one that has been expected for a long while arrived Sunday, April 24, at 5:00 p. m. to reside at the Sholly residence in the future: a son. Mother and son are doing fine at this writing.

Mr. and Mrs. Arnold Keimann of Denmark, personal friends of M. L. Wilson, under-secretary of the Department of Agriculture, visited the monument.

The field representative of the National Tourist Bureau for the American Automobile Association, accompanied by Mr. De Huff, president of the Santa Fe Chamber of Commerce, was in the monument April 23 taking pictures for their Eastern Tourist Bureau at Washington, D. C.

Mr. Cate of the New York World Telegram with Mr. and Mrs. J. Bursey of Santa Fe visited Bandelier. Mr. Bursey is director of the State Tourist Bureau for the State of New Mexico.

Thirty eight girl members of the Texas College of Technology at Lubbock had lunch at Mrs. Frey's Canyon Ranch and made a three hour guided trip through the ruins. After doing the "Big Apple" in the Cave Kiva and the Ceremonial Cave, they considered the trip a grand success. They were a very enjoyable crowd and quite appreciative of what we had to offer. We also enjoyed a visit from Mr. Robert M. Senior of the Museum of Natural History at Cincinnati, Ohio.

PARK SERVICE VISITORS

Mr. and Mrs. Dale King arrived at Bandelier April 11. Dale is making a very favorable showing on our museum. Acting Regional Director Herbert Maier; Mr. Finny, head of the personnel department for Region Three; Peggy Finny, Petersburg, Virginia; and Mr. Ayers, Camp Inspector for Texas, were monument visitors. Mr. Bill Wirt, Regional Forester, Santa Fe; Mr. W. W. Yeager, Assistant Forester, Santa Fe; Mr. and Mrs. Pesonen, Assistant Regional Director, Santa Fe; Mr. and Mrs. Alexander, Region Two, Omaha, Nebraska; Ranger and Mrs. Reed, Yosemite National Park, California; Mr. M. J. McCollm, Assistant

BANDELIER (CONT.)

Regional Director of Region Three; and Mr. Ballard, from the Washington office of the Recreational Planning Department, were monument visitors during the month of April.

POLICE PROTECTION

On April 9, Bob Hostettler threatened the life of the custodian with a 30.30 rifle, for no known reason. He was disarmed and placed in the Bernalillo jail. A warrant was sworn out for his arrest before U. S. Commissioner Gombel, and Hostettler was then lodged in the Santa Fe jail. He was placed under a \$3,000 bond after a hearing on April 15 and in default of the bond is being held in the Santa Fe jail until the next term of the Grand Jury.

MAINTENANCE AND IMPROVEMENTS

Repairs to the garage damaged by fire in January are nearly complete. Now, if we just had some tools for the garage, some of our worries would be over. The walls of the administration office have been refinished, and also the floor has been varnished and waxed. The three residences have been kalsomined, the dormitory has been remudded inside and the kalsomining of one room is completed. This leaves all our buildings in good condition and ready for another year of service.

MUSEUM SERVICE

Dale King, park naturalist, has been here all month, rearranging the museum. We hope to have most of the cases filled by June 1, or at least something in them for our visitors to see.

A piece of Jemez ware pottery was secured through Dr. Reginald Fisher from the School of American Research in Santa Fe for one of the exhibits.

TRAVEL

Total travel for the month was 845 people in 223 cars, an increase of 178 people for April, 1937. There were 38 states and five foreign countries represented. The seven states leading in number of visitors were as follows: New Mexico, 446; Texas, 76; Colorado, 55; California, 51; New York, 38; Pennsylvania, 14; Iowa, 14. Foreign countries represented were Canada, 6; England, 4; Norway, 1; Wales, 1; and Denmark, 2.

TRAVEL STATISTICS

Total travel-	- - - - -	845	Average time field trip-	- - -	105.4
Museum trips-	- - - - -	59	Total guide minutes-	- - -	9905
Total guide time special-	- - - -	350	Total contacts - - - - -	- - -	845
Total guide time in the field	-8855		Total guide time in museum	-1050	

BANDELIER (CONT.)

Special groups- - - - - 2 Average time museum contact- -17.8
Total visitor time- - - - - -43660

BIRDS

On March 30, we received 20 Blue or Scaled Quail from the State Game Department at Santa Fe for restocking the monument. At State Game Warden Barker's suggestion, a pen was constructed and the quail were penned up for two or three weeks before being released. On the night of April 11, a bobcat found the pen and, seemingly after numerous attempts, gained entrance by digging under the wire, which had been buried eight inches under the ground, and apparently devoured all the quail. A few may have escaped, but this is a remote possibility.

Bird banding has continued at various times during the month. Three robins were banded in addition to the various juncos. One Bendire Cross-bill was found dead in the campground and the skin has been prepared for study purposes.

The May issue of the National Geographic magazine carried a picture of Tyuonyi, the great Communal House on the floor of Frijoles Canyon. This picture was in connection with an article about New Mexico written by Frederick Simpich.

*****SWM*****

Cy doesn't play it up very much, but he came within an ace of getting killed by the man Hostettler. A combination of quick thinking and good luck preserved him to us.

It will be a relief to have that museum at Bandelier straightened out by the three or four weeks work of Dale King and we hope it will build up visitor interest and increase the length of time spent in the museum.--F. P.

*****SWM*****

BANDELIER CCC

By H. B. Chase, project superintendent, Box 669, Santa Fe, New Mex.

During this month all wall construction of the Lobby and Sales Room (Unit No. 2 of the Hotel Development) has been completed, all roof decking was completed, and the asphalt roofing mopped on. All month a crew has been busy laying flagstone flooring in this building and adjoining patios.

The flagstone flooring in the Employee's Dormitory has been completed this month. The window sash is now being installed, making this project ready for plastering.

BANDELIER (CONT.)

A small crew has been at work a part of the month on the Stone Wall Project, laying stone walls connecting the various buildings of the Hotel Development.

Unit No. 4 of the Hotel Development, Operator's Residence, was started this month. The basement has been finished and all footings have been brought up to sub-floor height.

During the month the Powerhouse Project, designed to house the 25 K.W. power plant, was started. The walls of the north, east, and west elevations have been completed to a height of approximately five feet, the bases for both the plant and radiator have been completed, and the generator is now being installed.

During the month the carpenter crew has installed all the lintels and vigas in the shop under the Reconstruction of Shop Project. Also they have spent a major part of the month hewing and cutting lintels and vigas for the various patios and buildings now under construction.

A large crew has been at work all month in the rock quarry, hewing and shaping building stones for use in this building construction and for the stone floors of the various buildings.

*****SWM*****

BANDELIER FORESTRY

By James T. Fulton, forestry foreman, Box 669, Santa Fe, N. Mex.

FIRE PRESUPPRESSION

During this month I have been holding classes in which instructions in fire suppression work were given. Three separate classes were organized: Leaders' School; Foremen's School; Lookouts' School.

In the Leaders' School, different methods of fighting fires, standard get-away time, use of tools, and handling men on the fire line were taken up.

In the case of the Lookouts' School, I have been training two men in order to intelligently man our temporary lookout point this summer. They are receiving instructions in reading maps, use of an alidade, and other miscellaneous duties of a temporary lookout. In my opinion they will both develop into proficient lookouts. It is expected that they will be put on duty the last part of April.

In the Foremen's Class, one whole Saturday morning was spent in discussing our organization plan, principals of suppression work, and in a discussion of the monument country with a view towards better understanding how to get around in it. Another Saturday morning was

BANDELIER FORESTRY (CONT.)

spent out on South Mesa looking at the country and discussing trails. Our closing meeting will combine the leaders' group and foremen's group in suppressing a dummy fire.

FIRE CONDITIONS

On a recent hike to the Stone Lions and back, it was noted that the forest is in a very dry condition. While no lightning fires are expected, man-caused fires are quite possible; so, beginning April 30, foremen will serve as fire guards over the week ends.

MISCELLANEOUS

I am still working a crew on the Lobby and Sales Room of the Hotel Development.

*****SWM*****

EL MORRO

By Robert R. Budlong, custodian,
Ramah, New Mexico.

Visitors this month, 206; total since October 1, 830.

As had been expected, April marked the beginning of our visitor season. The last week of the travel month was fine and clear, and many people took advantage of the good weather to hold picnics in the monument. Many of them were local people, however, who did not care to see the inscriptions, which accounts for the fact that only about half of our visitors this month took guided trips.

WEATHER

Mostly clear, with steadily rising temperature! Maximum was 76 degrees on April 22, minimum 12 degrees on the second. Snow fell on three days, the total depth being $6\frac{1}{2}$ inches (on the 6th, 14th, and 15th.) Total precipitation was .69 inch. High winds from the west blew sand all over the monument on four occasions during the month. The last of the winter snow on the north side melted April 21.

The past week has been quite warm, and grass is sprouting rapidly. A definite green tinge shows in the fields. Farmers have mostly completed their spring plowing, and many of them hope to start planting the coming week (the last in April).

ROADS

Roads leading to the monument have been rough but passable at all times during the month. Since visitors rather expect poor roads at this time of the year, we have had no complaints relative to them thus

EL MORRO (CONT.)

far. Roads within the monument have received considerable attention. Having no scraper, the removal of high centers is pick, shovel, and rake work which is quite slow and frequently interrupted by the arrival of visitors. In general the monument roads are in fairly good condition with but a few sandy high centers remaining.

VISITORS

A total of 206 persons visited the monument during the month. All visitors were contacted but one, who arrived while the Custodian and the HCWP were in town. Trips were made as follows:

Inscriptions (guided): No. trips, 35; total persons, 131; total time, 2,070 minutes; average persons per party, 3.7; average time per trip, 59.1 minutes.

Office (educational): No. visits, 10; total persons, 33; total time, 1,065 minutes; average persons per party, 3.3; average time, 106.5 minutes.

Trail (guided): No. guided trips, 1; persons, 4; time, 175 minutes.

Trail unguided (by permission): No. trips, 4; total persons, 48; total time, 520 minutes; average persons per trip, 7; average time per trip, 130 minutes.

Picnics: No. picnics, 4; total persons, 28; total time, 280 minutes; average persons, 7; average time, 70 minutes.

This is an increase of nearly 100 per cent over travel for the month of April, 1937. Perhaps some of those visitors that have been passing up headquarters and some of the southern monuments have been coming here instead. If travel continues to increase at the rate it is doing now, we are going to be unable to give good service to visitors. On April 24 a carload of visitors would drive in every few minutes, join the trip then under way, and this would necessitate much repetition of explanations previously made to the group. This was repeated as each new carload arrived, and it was impossible to keep accurate check on time spent by each new group, or number of persons in the party, as some did not register. At this rate, an extra guide will be needed on Sundays and holidays.

Mr. William R. Hogan and Erik K. Reed, of the Regional Office, made a short visit during the month, and, of course, stayed not nearly long enough.

Ranger and Mrs. Ernest R. Reed, of Yosemite National Park, visited the monument while the custodian was in town for supplies, and were shown the inscriptions by the H.C.W.P.

EL MORRO (CONT.)

Mr. and Mrs. Clay Lockett, of the Indian Service, visited the monument during the month primarily to discuss color processes in photography and also to visit and see the monument.

Mr. Roy Barker, district game warden, and his wife were very interesting visitors. They also brought us our Scaled Quail for the attempt to stock the monument with these birds.

Mr. Thomas W. Stevens and Mr. Karl Kilby, of Santa Fe and Albuquerque, visited briefly in connection with the proposed Cuarto-centennial to be held in 1940.

TRAILS

The north trail, which is in good condition, is mostly graded, and drainage ditches are being cleared of dead leaves and other debris. The south trail, as reported last month, is in very poor condition. No work is being done upon it, pending an inspection by the engineers. Our experiments with "lapidolith" solution have not been completed. We received the solution too late in the year, and it was thought inadvisable to apply the solution to the rock while below-freezing temperatures prevailed, since freezing of the solution in the porous rock would have resulted in greater disintegration of the stone. It is only during the past week that temperatures at night have remained above the freezing point.

Trails around inscriptions on both sides of the rock are kept raked and graded. These are not intended to be permanent trails, but we find that by keeping the present trails raked, visitors tend to keep to the newly-raked area instead of trampling down the sparse vegetation on either side of the present trails.

WILDLIFE

Prairie dogs, rock squirrels, and chipmunks have come out of hibernation within the past ten days, and considerable numbers of them may be seen.

The Golden Eagle is still on the nest. I do not know the period of incubation of the eggs, and it may be that the eagle is just lazy or tired, or merely resting. However, it is about time that the eggs, if any, hatched. A daily inspection of the nest is made through binoculars. These eagles are of great interest to visitors, and only two days ago I spent some time hanging over the edge of the cliff while a visitor held my feet in order that I might photograph for him the eagle on the nest, in motion pictures.

We are happy to report the demise of two more cats. One more still roams the monument, however, and all efforts are being made to remove

him permanently.

On April 12, District Game Warden Barker and his wife arrived at the monument bringing with them a crate containing 39 Scaled Quail. These were released between the cabin and the water pool. They did not fly, but wandered back among the trees and settled down for the night. Numbers of them have been seen from time to time, but only in small groups, and apparently they have scattered widely. Word has been sent around the vicinity that the quail have been released and all possible cooperation requested in their protection. Our very great thanks are due Mr. Elliott S. Barker, state game warden, for his kindness in supplying these quail; also to Mr. Roy Barker, district game warden, who brought the birds. Grain has been scattered within the boundaries to attract them.

SIGNS

During the month a sign was made and placed above the register advising visitors that cats and dogs must be kept in cars or on leash. Fragments of directional signs have been gathered from the roads and new ones are being made. As usual, signs are destroyed soon after being put in place. The Forest Service has placed new signs on the road between here and Grants and they will be of great help in keeping visitors on the right road.

QUARTERS

Boss, while I was being somewhat facetious in my remarks last month relative to our limited accommodations here, the matter really is serious. First of all, understand that in so far as we are concerned there is not the slightest complaint. We could always use a little added space to good advantage, our actual floor space measuring less than 4 x 7 feet, but our primary concern is for our visitors. It is virtually impossible to get visitors inside the cabin while the HCWP is engaged in any household activities, for space is then even more than ever at a premium. But this cabin is also our museum, lecture hall, and laboratory. We take pardonable pride in our "office visits" and our increasing number of "repeaters" can be traced directly to this service. If we could add to the present cabin one log room about 18 feet long (if no house can be constructed here this year) and if we could build a long bench or table along the north side of that room for our educational material, I can promise you a "desert laboratory" that will undoubtedly be somewhat novel, but one that will enable us to increase greatly our educational contacts here. I am a great believer in the value of the relatively little-visited outpost monuments as educational points.

Give me an outpost station every time. What if there are no conveniences? The lone outpost man can do far more in the way of making

fast friends for the Service and can give greater education, I believe, than most of the heavily-traveled monuments put together. Give us that added room, and don't worry about a museum. And then, in about six months, better send us up a relief man for routine matters on Sundays and holidays, or a "traffic cop" to direct traffic. Do we get that room?

*****SWM*****

Bud and Betty are strictly entitled to that room he is talking about. We have been trying our best to get new quarters, or rather some quarters, for the present log hut will hardly qualify under the name, for the last four or five years. We are not allowed to ask for it under the regular appropriation, being told that we must get it under the emergency funds. We have never been able to get it under the emergency funds controlled by the state authorities, being told by them that the Congress will take care of us and they have to look out for their own state projects. There is too much material cost to do it under WPA. Between all these projects we have been unable to get anything done and I think Bud has the best solution in a temporary addition to the old cabin.--F. P.

*****SWM*****

NATURAL BRIDGES

By Zeke Johnson, custodian,
Blanding, Utah.

I am still on the waiting list, not being able to get out to the monument on account of the cold, wet weather. I got out as far as the forest boundary line on April 18, but got stuck in the mud when I attempted to turn around to come back. I am sure that I want to be out there before May 7 or 8, and if I had some horses of my own, I would have been out there long ago. But I could not afford to hire horses for the trip. Another year I will try to have some of my own.

There **have** been quite a lot of people who came expecting to drive out. There were 53 from the State Agricultural College at Logan, Utah, five professors, and 48 students, on April 11, and **were** they disappointed! I took them down to Five-kiva Cave and talked to them for 40 minutes. I was with them four hours. I also talked to many other people and showed them the cave and many other ruins around Blanding. On April 5, R. C. Adams and John Maken from Denver were here to see me. I took him and his wife out to the bridges on horseback 12 years ago, and now they wanted to drive out. They said that they would come back later. I have made two trips down to Bluff with other tourists who were disappointed because of being unable to get out to the monument.

On April 23 I drove to Moab and attended the convention of the Associated Civic Clubs of Southern Utah. I spoke to them for ten minutes, and also had a nice visit with Custodian Harry Reed. Arches

NATURAL BRIDGES (CONT.)

National Monument is certainly on the boom, and I am glad. Mr. Black, the state highway man, says he will tackle the Elk Mountain Road in a few days. I can hardly wait, for I want to get out there as soon as possible. I will try it again next Monday.

This has been the coldest and wettest April I have ever seen in San Juan. Almost every other year I could or did get out to the bridges long before this.

I hope you call me to come for the pickup soon. It doesn't make much difference which place I come for it, Flagstaff or Gallup.

Dr. Fred J. Pack, professor of geology of the University of Utah, expects me to take care of him and 15 students for eight or ten days soon after May 6. He says he must go to the bridges as they are the highlight of his whole trip--that is the very way he said it--and he cannot make the trip unless I take care of him. I will put Junior on the job for a few days and take care of Dr. Pack as soon as I know that we can get over the Elk.

Oh yes, I forgot to tell you that Superintendent Nusbaum of Mesa Verde was at Moab and that I had a short visit with him.

I will use the tablet and keep a regular diary after this as I know that I am going to have some real reports to make. I will write again in a few days. Many thanks for the folder and leaflets; they are just what I have always wanted.

*****SWM*****

CHACO CANYON

By Lewis T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 840; total since October 1, 2,217.

As usual, April has been a fair month for visitors here at Chaco. But the March winds (which blow here through February, March, and April) are still hard at it. The roads are in fair condition, both from the north and south. The sandhills north of headquarters, near the Escavada Wash, are still in fair shape, except in two places where the sand has drifted over the plating put on last May. The trail roads within the monument are no doubt in better shape than last year for, with the aid of the Mobile Unit, I have been able to repair several mud holes with debris taken from the ruins where they were working.

The entire canyon in general is beginning to green up, a few blossoms here and there are noticeable, a lot of birds are returning, and the lizards are out again. As yet, no snakes have ventured out.

CHACO CANYON (CONT.)

WEATHER

The maximum temperature for this month was 81°, as compared with a maximum of 84° last April. The minimum temperature was 16°, as compared with 18° in April a year ago.

There were only seven stiff wind-and-dust storms this month, compared with ten heavy dust storms that took away part of the monument a year ago.

We've only had two cloudy days this month, while there were four cloudy days last April.

There was a .23 inch precipitation recorded this month, as compared with .38 inch a year ago. However, I believe things look better in general than they did this time last year.

VISITORS

We have had 840 visitors through the monument this month, which is an increase of 37 over April a year ago. 407 of these were contacted.

A group of Soil Conservation officials from Albuquerque and Gallup, New Mexico, also Window Rock, Arizona, were official monument visitors this month. The group consisted of Mr. Matthews, regional engineer; Mr. Arthur Fife, district engineer; Mr. Ray Walker, chief of operations; Harry Jones, designing engineer; Mr. Short, Mr. Inapp, and Mr. Love. They made plans while here for quite a lot of bank protection work near the ruins of Una Vida, Hungo Pavi, Pueblo Del Arroya, and Kin-klet-soi.

The monument was honored this month by having as visitors, Director of Indian Service Forestry, Lee Muck, of Washington, D. C.; Indian Service Regional Forester, Frank D. Lewis, Spokane, Washington; and Indian Service Regional Forester, W. H. Zeh, Phoenix, Arizona.

Mr. Ford, of the Indian Service of Window Rock, Arizona, was an official visitor at the monument this month.

NATIONAL PARK SERVICE VISITORS

Park Naturalist Dale S. King and Mrs. King, from headquarters at Coolidge, Arizona, were official monument visitors this month. Custodian and Mrs. Carroll Miller of Aztec Ruins National Monument were also Chaco Canyon visitors.

A fraternity group consisting of eight lads from Pomona College visited the monument. They arrived here at 4:45 in the afternoon, in a very bad wind and dust storm. They seemed to enjoy their visit very

CHACO CANYON (CONT.)

much, even though there was a bad storm on.

On April 9 we had as visitors Mr. J. C. Porterfield and a group of 46 students of the Central School which is located between Fruitland and Kirtland. Mr. Porterfield, who is a teacher at the Central School, is much interested in the ruins at Chaco. The students were also very interested, and seemed to enjoy the day and the trips to several of the ruins.

THREATENING ROCK

I noticed 1/16 inch outward movement of Threatening Rock the second of April, on the east end; 2/16 inch in the center; and 1/16 inch on the west end. On April 15 it moved out 1/16 inch on west end, with **no** movement on east or center. On April 21, it moved back 1/16 inch on the west and 1/16 inch in center, east remaining the same.

On the night of April 14, the temperature dropped 10° lower than the night before. It rained and snowed (.20 inch precipitation) and was cloudy all day. However, the movement of the rock took place on the 15th with 1° warmer temperature than the day before on the minimum, and 5° on the maximum. On the day of the outward movement, it was partly cloudy with a stiff west wind.

The 19th and 20th of April were partly cloudy with a stiff west wind. On the 21st the wind changed to the northeast and the day was clear.

RUIN WALL FALLS

Part of one of the small house sites located on one of the side arroyas about one mile south and east of Wejiji Ruins **has** caved off into the arroyo. Just another good wall gone down that could **have** been saved but can never be replaced.

Well, Boss, I had better close this and begin to think up something for this coming month because I don't believe I will have much time to think after another week or two.

*****SWM*****

MOBILE UNIT

Br Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

Since our last narrative report during a period covering five weeks, we have expended 491 man days, divided among six jobs as follows:

(1016-2) Clean existing drainage ditches- - - - - -86 man days.
(1016-3) Repair capping - - - - - -62 man days.
(1016-4) Wall support, Bonito - - - - - -176 man days.

CHACO CANYON CCC (CONT.)

(1016-5) Wall patching, Bonito- - - - - 4 man days.
(1016-20) Wall support, minor ruins- - - - -139 man days.
(131-23) Repair boundary fence- - - - - 4 man days.

All camp and equipment maintenance overhead has been pro-rated among the above jobs.

Job 2, **Cleaning Existing Drainage Ditches**, as last month, has been concentrated on the east side of Bonito where a large dump has dammed the run-off from the cliffs against the outer wall, rooms 178 to 184. This dump is composed wholly of blown sand. Against the wall, it reached a height of four feet and, 12 feet out from the wall, a height of seven feet. From photographic data available, it appears that this sand has either been removed from the ruins and piled there or has accumulated naturally since 1924. With the removal of 268 cubic yards of this material in the past two months, the drainage for the east side of the ruin has been greatly improved. All of the removed material has been used to grade up the area at the rear of the custodian's residence or has been spread on the lowest parts of the monument roads.

The need for removal of this fill against the walls would not have become pressing until the coming of fall rains, and work on it was done only as adverse weather conditions forced us to slow down on other work. With it removed, there is not a great quantity of drainage-ditch clearance remaining to be done. The remaining major item of importance is the removal of 60 yards at the northwest corner of the site to deepen the drainage there.

On Job 5, **Wall Patching**, the 176 man days were spent completing the repair to the series of 16 rooms, 341 to 344 and 131 to 142 inclusive, that form part of the south limits of the site. Last month 61 square yards of surface were repaired while 102 were done this month. This brings the total for the completed area to 163 square yards. As reported last month, repairing this type of masonry requires considerable time as it is necessary to individually shape each block and spall. A random sampling of this repaired wall shows an average of 387 pieces of stone per square yard of surface.

Before work began, the greater part of this wall had fallen so low and was covered with such a depth of blown sand as to be almost undistinguishable. In repairing it, it has been necessary in most cases to build up the veneer on both sides of the wall. While it has consumed a great deal of time, I believe that this single job has done more to add to the appearance of Bonito than any other that we have undertaken.

With this section completed, we are now at work on two separate wall repair jobs. One is in progress in Room 339. Here we have an excavated room adjoining one which has not been cleared out. In the

CHACO CANYON (CONT.)

one which has not been cleared, the fill stands six feet above the floor level of room 339. Water collecting in the unexcavated room has washed through the wall, cutting out part of the doorway and undermining 12 feet of wall at the base. The foundations are now being repaired and the doorway rebuilt. When this is completed, we will apply a seal coat to the unexcavated side of the wall with a drain at the bottom leading out through the doorway and away from the wall.

The second wall repair job in progress is in Room 98-A, a third story room in the north central part of the building. Here an area of four square yards of surface veneer, offset slightly from the rest of the wall, has broken away from the core and fallen. This is a particularly harmful case as directly above the fallen area there are another four or five yards of fine masonry still intact. Most of it is unsupported except for occasional projecting stones of the core below. Included in this repair job are two doorways lower down in the wall, two partially broken windows, and a series of holes from which the floor beams have rotted.

Of the 62 man days on capping, 54 were spent on the series of 16 rooms noted above as having the repair on them completed. In capping this wall at least one layer of spalls, a band of spalling averaging three to four inches, and one layer of large blocks is laid in the stabilized mortar. To date, 40 yards of capping have been laid and there remains another 15 yards to be done.

The other eight man days charged to capping have been expended hauling sand and gravel from the San Juan for use in laying the concrete to be built over part of the second story walls on the east side. It takes a truck six to seven hours to make the 112 mile round trip to the San Juan. Adding hauling and labor costs, this brings the price of sand and gravel to \$2.42 a yard. This is extremely high, but the San Juan Valley is the closest place where usable sand and gravel is available and the roads between here and there are not the best.

The small item of four man days for wall support, Job 4, is in Room 340 where the north cross wall, east to west, 12 feet long and eight feet high (which was not tied in to the other north and south walls at either end) has bulged and moved out of plumb at each end until it is irregularly out of plumb from four to eight inches. To support this in the condition in which we find it, we have taken down the top two and a half feet and below this have removed another foot of the interior core without disturbing the exterior surface. In this trough we are laying a reinforced concrete core securely tied into the end walls of the room. Near the top of the concrete core it will be widened enough to support the surface veneer as well as the core of the wall which will be replaced above it. None of the concrete will be visible at the surface.

Job 20 at Kin Klizin was completed during the week of April 18 except for the final capping of the new work. This capping has been delayed as we failed to order the Bitumuls stabilizer in sufficient time. In the 139 man days used on this project, there were laid 38 square yards of veneer replacement, nine square yards of repointing, and six cubic yards of heavier masonry. This masonry yardage is divided as follows: at the base of the tower, west side, two yards of veneer and two yards of repointing; on the second story of the tower, south side, five yards of veneer and three cubic yards of masonry fill; on Room 1, north of the tower, one yard of veneer repair and two yards of repointing; Room 2, north of the tower, one yard of repointing, and three cubic yards in a heavy wall which acts as a buttress for the walls of Room 1; on the complex interior bench in the tower, 30 yards of veneer replacement and four yards of repointing.

The 30 yards of veneer replacement on the bench act as support and protection for the second story of the tower. This bench is a wide offset in the wall of the tower and when any portion of its veneer breaks down it leaves exposed the softer, more easily eroded core of the tower above. Observing the correlation between the condition of the bench or any offset in the wall and that of the masonry above it, it becomes evident that in most cases these walls break down from the bottom upward, if that is possible, instead of wearing down from the top. A narrow offset, such as at Kinklizin, only the width of the veneering layer of masonry offers a place for moisture to collect and enter between the surface layers and the core. Here, unlike the exposed top of a wall, there is not enough adobe mortar **present** to soften and spread giving some measure of protection, but erosion goes on more and more rapidly as the veneer on the surface is separated from the core.

Under the direction of Custodian McKinney, one enrollee has put in four days making repairs to the boundary fence (Job 131 - 23).

In addition to the work now under way, jobs proposed for the early part of May include laying the concrete walk over the second story in the southeast corner of the ruin and waterproofing Room 110. Room 110 is the two story room in the northwest part of the site that is complete with two floor levels and two original ceilings. Part of this room, the lower story, is almost entirely below the surrounding ground level. To waterproof it we will trench the entire room to the lower floor level and apply a seal coat of strong stabilized mortar to the outer walls, then refill the trench with broken rock so as to admit as much air as possible near the bottom of the walls. With the trench refilled, the surface drainage will be corrected as much as possible, although, due to its low position in the ruin, not a great deal can be accomplished in this way.

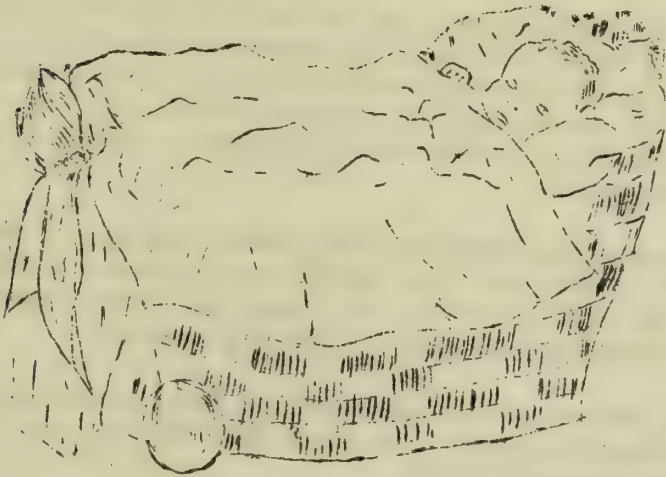
*****SWM*****

CHACO CANYON (CONT.)

Gordon and his CCC Mobile Unit seem to have been very busy during the month at Chaco Canyon National Monument.

This has been a fine piece of cooperation between the Indian Service and our Service and we are glad to hear that, as far as can be ascertained at this time, it will be carried on through the next fiscal year.--F. P.

*****SWM*****



Eleanor Jean Stevenson
March 2, 1938
Nine pounds
Chiricahua National Monument.

Robert Henry Sholly
April 24, 1938
Seven pounds, 11 ounces.
Bandelier National Monument

HEADQUARTERS

ACTIVITIES OF THE GENERAL MECHANIC

The roving ranger's car, reported as being 50 per cent overhauled last month, was finished with the exception of removing the gasoline tank for cleaning. Also it was found necessary, for the sake of economy, to replace the old carburetor. The appearance of the car is much improved by the green coat of paint on the white cover.

Automotive and general work accomplished other than servicing our equipment includes: two coats of green paint on USDI 1813; rear bumper and new battery on USDI 13915; installation of tow bar and trailer hitch on USDI 13917; repairing of CCC concrete mixer magneto; manufacture of three plaster hods; and the checking of a refrigerator for Wupatki.

Our sewer line stopped up on the evening of April 10 because of plant roots growing through the joints of the tile. It was necessary to make a drag cleaner and break into the line in several places to clear it. "Y" clean-outs were installed in case of future trouble, and a manhole was placed at the line junction. Fifty eight hours have been spent on this work.

Shop equipment received this month includes: SAE dies and taps, $\frac{1}{4}$ to $\frac{3}{4}$ inches; USS dies and taps $\frac{1}{4}$ to $\frac{3}{4}$ inches; 1 Sharp paint gun and regulator; SS drills $\frac{1}{8}$ to $\frac{1}{2}$ inch, by 64ths, complete with stand; and 1 cutting attachment for Smith welding outfit.

A trip was made to Tumacacori to help unload diorama cases for the museum; another on April 8 to take USDI 8116, dump truck, for use in connection with account 99.225.

*****SWM*****

BRANCH OF EDUCATION

By Dale S. King,
park naturalist.

During April the Educational Staff was considerably scattered due to the demands in the field. Park Naturalist King left headquarters on April 6, devoting the balance of the month to the museum at Bandelier, getting it in shape for the coming visitor season. Junior Archeologist Charlie Steen returned from temporary assignment at Tumacacori, resuming his duties at headquarters on April 22. Junior Naturalist Dodge returned from the Western Museum Laboratories with a truck load of exhibits for the Tumacacori museum and took up headquarters duties March 29 (which partly accounts for the tardiness in getting out the March monthly report). CCC Enrollee Wayne Eppes went home on furlough April 22, being replaced by Enrollee Victor Sholtz on April 25. Following is a resume of the time devoted by members of the staff to various projects:

BRANCH OF EDUCATION (CONT.)

		King - Steen - Dodge - CCC			
		Days			
<u>General Office Work</u>					
Correspondence (123 letters) . . . . .	.1	3/4	2	0	
Conferences and discussion					
With Headquarters Staff	1/2	1/2	1/2	0	
With visiting scientists and technicians.1		0	0	0	
With personnel.	1/2	0	1/2	0	
Library (file, issue publ., etc.) . . . . .	.0	2-1/2	1/4	0	
Reports					
Compiling and processing monthly report .1		1-1/2	10	13	
To Washington Office. . . . .	.0	0	1/4	0	
To Region III Office. . . . .	.0	0	0	0	
Miscellaneous . . . . .	.0	1-1/2	0	0	
Publicity					
Compiling and processing informational					
and publicity material. . . . .	.0	0	1/4	0	
Check Region III publicity releases . . .0		0	0	0	
Miscellaneous					
Construction (painting, carpentry, etc.)0		0	0	0	
Wrapping and preparing supplies and					
other requested material. . . . .	.0	0	1/2	1/2	
Clean-up work . . . . .	.0	0	1/4	1/2	
<u>Research and Education</u>					
Public Contact					
Prepare and deliver outside lectures. . .0		0	3/4	0	
Relief guide duty at monuments . . . . .	.0	11	3/4	1/2	
Office visitors (informational) . . . . .	.0	0	1/4	0	
Museum and Nature Trails					
Acquire and prepare specimens . . . . .	.0	0	1/4	0	
Acquire equipment and supplies. . . . .	.1	0	0	0	
Planning (White Sands, Bandelier)	1/2	1/2	0	0	
Arboretum preparation and planting. . . .0		0	1/2	3	
Visual Education					
Slide Library work. . . . .	.0	0	0	0	
Photography	1/4	0	0	0	
File prints and negatives . . . . .	.0	1/4	0	0	
Take and process photos . . . . .	.0	0	3	0	
CCC Side Camp Educational Program1		0	1	0	
Faunal observations and bird banding. . .0		0	1	1/2	
Ruins stabilization proj. administration. 1/2		0	0	0	
Antiquities program administration. . . .3		0	0	0	
Mobile Unit	1/4	0	0	0	
Aztec Ruins . . . . .	.0	0	0	0	
Southwestern Monuments Association. . . .0		0	0	0	
<u>Field</u>					
Field Trips (Berkeley - Bandelier). . . .	15-1/2	0	3	0	
Moving from Tumacacori.	0	4	0	0	

BRANCH OF EDUCATION (CONT.)

	<u>King - Steen - Dodge - CCC</u>			
<u>Leave</u>	<u>Days</u>			
Annual.	0	2-1/2	0	0
TOTAL. . . . .	.26	25	25	18-1/2

VISUAL EDUCATION

Considerable progress was made during the month in advancing the visual education program through the acquisition of 288 lantern slides made and colored by the Western Museum Laboratories. These slides are in triplicate, thus adding '96 new items to the slide library. In addition, approximately 300 feet of 16 mm. colored movies were made through a cooperative project with Casa Grande National Monument (see page 322 of this report). When completed, this movie will be a chronological record of the making of a piece of Pima pottery and a Pima basket. The cooperation of Miss Elizabeth Hart of the Indian Service and of Mr. Julian Hayden of Pueblo Grande constituted valuable assistance in obtaining these pictures.

SOUTHWESTERN MONUMENTS LOAN LIBRARY

Although gratifying use of the library was made by the men in the field, much greater utilization of this facility is encouraged. Loan and return records were kept up to date. The following publications were received during the month: four books, 22 periodicals, 12 pamphlets, two reprints, and four reports. Shelf space in the library is now at a premium and more bookcases are needed.

PUBLICITY

The usual number of requests for information were answered, and all available photographs of personnel were turned over to the Associated Press following a request made several months ago. Several requests for photographs of monument scenery and archeological features were referred to the Washington office because of lack of photographic material in our files.

On April 21 an illustrated talk on the Southwestern Monuments and the work of the National Park Service in these areas was made before the Hiram Club of Superior, Arizona.

Material processed during the month consisted of: 400 museum catalog cards, 1,000 copies of SWM 16-third revision, 500 Band Number Record Cards, 2,000 Casa Grande informational leaflets, 50 CCC educational enrollment forms, and 1,500 Aztec Ruins informational leaflets.

CASA GRANDE SIDE CAMP EDUCATIONAL PROGRAM

Following the arrival of seven new enrollees replacing those returned

BRANCH OF EDUCATION (CONT.)

to the mother camp for discharge, the CCC educational program has been revised for the Casa Grande Side Camp. Thirteen courses are offered, from one to 11 enrollees signing up for each. As the month closes, the program is under way and apparently running smoothly.

ACCESSIONS

From the Western Museum Laboratories 288 lantern slides were received and filed in the slide library. A quantity of planting materials were donated by the Arizona State Highway Department nurseries for the gardens at Tumacacori. Seeds of a native poppy were provided for the headquarters arboretum by the Boyce Thompson Arboretum. From Washington, D. C. came 200 each of informational leaflets on the following monuments: Tonto, Arches, Rainbow Bridge, Sunset Crater, Walnut Canyon, Yucca House, and Gila Cliff Dwellings. A 16 mm. motion picture projector was provided by the Phoenix Sub-district Headquarters for the use of the Casa Grande Side Camp. One Gila Monster and one Horned Lizard were prepared as specimens.

NATIONAL PARK SERVICE VISITORS

Headquarters visitors during the month included Tom Onstott, "Doc." Ruhle (Glacier), H. A. Montgomery, and Jack Diehl (Region 3), Ted Cronyn, Edwin Alberts, and A. E. Underhill.

BIRD BANDING

The coming of hot weather, migratory movement of birds, and other factors caused the bird banding program to slacken during April. However, the following birds were handled:

	<u>New</u>	<u>Repeat</u>	<u>Return</u>
Dove, Western Mourning.	2	2	0
Finch, House.	2	2	0
Junco, Oregon	0	1	0
Owl, Pallid Horned.	3	0	0
Quail, Gambel	0	12	3
Shrike, White-rumped.	8	0	0
Sparrow, Arizona Chipping	1	1	0
Sparrow, Gambel	2	21	1
Thrasher, Bendire	0	1	0
Thrasher, Crissal	0	3	2
Towhee, Green-tailed.	2	5	0
Wren, Cactus.	2	0	0
TOTAL.	22	48	6

Nesting season was well underway, and many interesting observations were made (see "Bird Notes from Casa Grande", page 324 of this report). This office is very grateful to the U. S. Biological Survey for an analysis made during the month of 15 Pallid Horned Owl pellets collected

BRANCH OF EDUCATION (CONT.)

beneath the shelter over the Casa Grande ruins.

*****SWM*****

VISITOR STATISTICS AND EDUCATIONAL CONTACTS

By The Boss

In the month of April we had, as nearly as we are able to find out, 31,720 visitors to our Southwestern Monuments. This compares with 22,719 for the same month last year and 18,830 for the same month two years ago. While part of this increase can be checked as a considerable jump in the figures of White Sands and Saguaro National Monuments, where we can make no claim for accuracy in our figures, and an abnormal hump of 2,400 visitors at Aztec, due to the sunrise service; there is no question that we have a healthy increase of normal visitors at almost all of the monuments. Our own first worry, when our total attendance curve begins to peak, is to see that the crowds are going to places where they will do little harm. This is true of the heavy April traffic; the only danger point was at Aztec Ruins National Monument where three of our regular men and a group of Boy Scouts handled the parking problems and the few hours of visitor peak so there was no damage.

With the 31,720 visitors, our men made 15,754 contacts, or delivered that many units of service. In percentage this figures 49.6 per cent contact and compares with 67.7 per cent last year and 56.8 per cent the year before. We have plenty of slack to take up before we can consider our service to the visitor satisfactory.

We gave 1,591 field trips to 11,243 visitors. These visitors had plenty of time to talk things over with the guides because they averaged seven persons to the party and the party was out with the guide for 44.1 minutes. This was much better than the previous month when the field party averaged only 36.2 minutes and a little better than last April when the field party averaged 43.4 minutes.

We gave 880 museum talks to 5,360 visitors. Here again the visitor had a chance to ask questions because the average party was only six persons. They remained 22.4 minutes on the average as against 23.5 minutes for the previous month and 18.7 minutes for the same month last year.

Checking only those monuments where the most careful records are kept, we are able to say that visitor traffic has picked up at our Southwestern Monuments despite the general tendency among people to check all unnecessary expenditures which has been felt for the past several months over our district as well as over the country at large.

Beginning October 1, the visitor year has thus far brought us 137,052 persons, which compares favorably with 113,251 for the same

VISITOR STATISTICS FOR APRIL, 1923
SOUTHWESTERN MONUMENTS

MONUMENT	EMPLOYEES		FIELD TRIPS				MUSEUM TALKS				Unattended		Total Informa- tional Contact	Total Travel	Per cent Con- tact
	Per.	Temp	No.	Att'd	Time	Av. Att'd	Av. Time	No.	Att'd	Time	Av. Att'd	Av. Time			
Arches	1	--	--	--	--	--	--	--	--	--	--	--	150	--	150
Aztec	1	--	142	3249	5300	22.8	37.3	147	843	3710	5.7	25.2	206	3243	3449
Bandelier	2	3 CCC	84	237	8355	3.8	105.4	59	231	1050	3.9	17.8	367	523	845
Canyon de Chelly	1	--	9	24	1535	2.6	173.0	--	--	--	--	--	41	24	65
Capulin Mountain	1	--	--	--	--	--	--	--	--	--	--	--	1100	--	1100
Casa Grande	2	4 CCC	757	2138	12078	8.8	35.4	242	2716	5201	11.2	21.5	764	5884	3823
Chaco Canyon	1	--	79	522	5138	6.6	65.0	37	352	1831	5.2	27.3	290	874	840
Chiricahua	1	3 CCC	103	814	5700	7.9	55.3	--	--	--	--	--	236	814	1050
El Morro	1	--	66	100	1235	3.9	62.3	10	33	1065	3.3	106.5	48	168	206
Gila Cliff	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Gran Quivira	1	--	61	263	4782	4.3	78.4	--	--	--	--	--	--	263	263
Hovenweep	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Montezuma Castle	2	--	235	801	8900	3.4	37.8	156	504	2558	3.2	16.3	129	1305	1107
Natural Bridges	1	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Navaajo	2	--	8	32	1450	4.	161.0	--	--	--	--	--	2	32	34
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	800	--	800
Pipe Spring	1	--	33	117	710	3.5	21.5	--	--	--	--	--	97	117	214
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	10	--	10
Saguaro	--	--	--	--	--	--	--	--	--	--	--	--	2472	--	2472
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	--	227	--	227
Tonto	--	1	83	324	2205	3.7	43.7	41	155	730	3.7	17.6	328	479	717
Tumacacori	1	1	265	1163	7040	4.4	26.7	--	--	--	--	--	1403	1168	2571
Walnut Canyon	1	--	95	329	2180	3.4	22.9	158	526	3635	3.3	23.0	515	855	908
White Sands	3	--	--	--	--	--	--	--	--	--	--	--	10700	--	10700
Wupatki	--	--	--	--	--	--	--	--	--	--	--	--	163	--	169
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
TOTAL	23	12	1591	11245	70168	7.0	44.1	880	5360	19780	6.0	22.4	20074	15754	31720
Last month	24	11	1221	7237	44314	5.9	36.2	499	3812	11739	7.6	23.5	8214	11049	16159
Last year	14	6	1410	8210	60931	5.8	43.4	753	4733	14148	6.2	18.7		12927	22719

VISITOR STATISTICS AND EDUCATIONAL CONTACTS (CONT.)

period a year ago.

This all sounds very nice, but I can't help pointing out that in the 20,000 visitors we didn't reach with our services last month, there were thousands who were eager for information (if we may judge by the thousands we did reach) but who went to those monuments where we do not yet have personnel.

*****SWM*****

SOME CASA GRANDE VISITOR RECORDS

By the Boss.

Traffic stepped up in February, slowed down in March, and now it looks as if it is stepping up again in April. I wonder why it does this.

The following table shows the average trip time at Casa Grande National Monument where we are conducting some pretty accurate tests.

AVERAGE TRIP TIME

	RUINS			MUSEUM			TOTAL		
	APRIL	MARCH	FEB.	APRIL	MARCH	FEB.	APRIL	MARCH	FEB.
Rodgers-----	35.8	37.4	34.6	22.9	22.8	20.3	58.7	60.2	54.9
Coyle-----	34.7	35.6	33.0	22.7	19.9	19.4	57.4	55.5	52.4
Holt-----	32.6	-----	-----	20.2	-----	-----	52.8	-----	-----
Savage-----	29.3	31.3	28.7	15.4	16.1	17.5	44.7	47.4	46.2
Jones-----	41.4	45.1	44.6	23.3	24.6	25.7	64.7	69.7	70.3
Bicknell----	54.9	50.1	43.6	30.6	30.8	24.8	85.5	80.9	68.4
Dodge-----	60.0	-----	-----	26.0	-----	-----	86.0	-----	-----
AVERAGE---	35.4	36.2	33.7	21.4	21.1	20.1	56.8	57.3	53.8

It must not be presumed that we are running seven guides at Casa Grande. Dodge took only one party. Holt is a new man with only a few trips to his credit and is doing remarkably well. Rodgers, Coyle, and Savage have taken the brunt of the work. Jones and Bicknell have been busy with other work and have pinch hit with visitors at noon hours and peak loads, which distorts their figures somewhat, giving them longer times than they would probably get in the regular run of the work.

Coyle made a determined effort in April to even his score with Rodgers and you will note that he nearly succeeded with his museum trip time where he picked up 2.8 minutes. Rodgers, who knew the effort was being made, and did his best, picked up only .1 minute. In the ruins trip, Coyle was 1.8 minutes behind Rodgers last month and has cut the lead to 1.1 minutes in April. Both men go off time during the month but that, I think, is due to the speed-up of the traffic. Rodgers, Coyle, Holt, and Savage are CCC enrollees. Rodgers and Coyle have been working about five months and their abilities seem pretty well matched. Savage has not been with us so long and has not yet learned to handle the museum work. Holt is a new man and is starting with a surprisingly high record.

CASA GRANDE VISITOR RECORDS (CONT.)

for the number of parties he has handled.

The following table shows some individual guide figures:

	Days	No. Parties		Minutes		No. Visitors		Half trips per day
	Worked	Ruins	Museum	Ru.	Mu.	Ru.	Mu.	
Rodgers-----	22	91	64	3261	1466	804	709	7.0
Coyle-----	23	89	61	3092	1390	784	778	6.3
Dodge-----	1	1	1	60	26	14	14	
Holt-----	6	23	23	750	465	151	171	7.6
Savage-----	24	102	54	3093	834	891	520	6.5
Jones-----	18	31	24	1284	561	332	341	3.0
Bicknell---	19	20	15	1098	459	192	183	1.9
TOTAL--	113	357	242	12638	5201	3168	2716	5.3

Holt leads with an average of 7.6 half trips per day--an half trip being either a museum talk or a visit to the ruins. Rodgers is next with 7.0 half trips. Savage is next with 6.5, and Coyle next with 6.3 half trips. This means that on the whole the boys had an easy month except for the peak loads of Sundays.

It is interesting to note that Rodgers and Coyle both spent 31 per cent of their time in the museum; Jones 30 per cent; Bicknell 29 per cent. The high and low limits were made by Holt who spent 38 per cent of his time in the museum and Savage who made a percentage of 21.

The pressure of traffic is shown in the following table and compared with February.

TRAFFIC PRESSURE

	Average number of half trips per day for days of week.	
	April	February
Sunday- - - - -	31.4	37.5
Monday- - - - -	16.5	25.7
Tuesday - - - - -	19.5	21.4
Wednesday - - - - -	18.0	23.2
Thursday- - - - -	18.5	24.4
Friday- - - - -	14.0	23.7
Saturday- - - - -	18.4	26.7

The guides are doing less work in April than in February. Friday was the easy day in April whereas it was Tuesday in February. But as a matter of fact, there doesn't seem to be any regular "poor day" in the week. Sunday does seem to be a regular peak day and the amount of the peak load can be seen above; it runs nearly a third greater than the average day and in April was more than twice as great as the low point of Friday.

PERSONNEL NOTES

By the Boss.

The personnel news of the month, of course, is the march Lewis McKinney stole on us in putting over a marriage without letting anyone at headquarters hear of it until it was all over. We welcome the new Mrs. McKinney into the Service, and I believe there is already talk of making a bird bander of her. Thus does she become a real Honorary Custodian Without Pay and receive her initiation into the organization. Congratulations, Lewis, and we hope to meet Carolie soon.

Carroll Miller's pleased look is due to the big success of his Easter sunrise ceremony. We grant that getting two and a half thousand people out of bed that early in the morning is a worthy enterprise but point out that Carroll had the help of John Will Faris and Lewis McKinney. The three of them make an unbeatable combination and could accomplish almost anything.

Parke Soule took time out to have a bothersome appendix removed. The operation occurred Friday morning, April 15, and Parke came home the ten miles from the hospital Tuesday, which shows you how tough these Southwestern Monuments men are.

Dale and Hortensia King have been over in Bandelier most of the month working on the Bandelier museum.

Bill Leicht took over Navajo National Monument just as a blizzard struck the country and for a week or so that tent house in Be-ta-ta-kin Canyon was Bill's idea of no place to live. He said something about it being four above zero in the tent with a fire going, which makes the desert rats among us shiver. You tell him how it was at 65 degrees below in the Yellowstone, Al.

George Boundey had a narrow squeak when he came up on a deep dip in a long open stretch of road and found it occupied by some horses. There was nothing to do but take to the borrow pit and avoid the stock. **The car turned over** but fortunately no one was seriously hurt.

Charlie and Mary Steen are settled in rented quarters in Coolidge and Charlie is back at work in the educational offices again. Ted Cronyn is helping out at Tumacacori until the papers for a permanent appointment come through.

Word from Jesse and Jane Jennings says they have arrived at Ocmulgee and have found plenty of work waiting to be done. Edwin Alberts seems to be taking hold in the place left by Jesse at Montezuma Castle in good style; one or two of his well-pleased visitors having turned up at headquarters.

Incidentally, the visiting group of Sierra Club members while spending the evening around the campfire on our picnic grounds at Casa

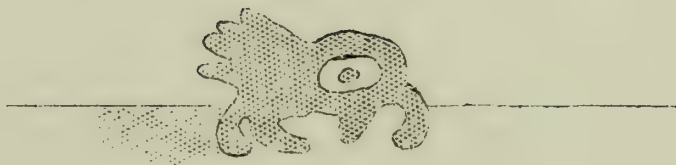
PERSONNEL NOTES (CONT.)

Grande, were warm in their praise of Tommie Onstott who had shown them around at Tonto that day.

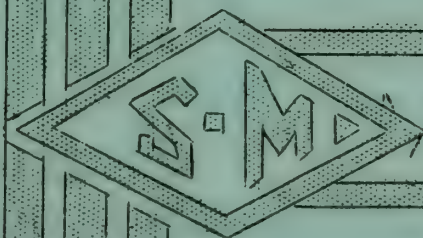
Another HCWP was added to the growing list of Southwestern Monuments personnel with the wedding on April 20, in Tucson, of Miss Courtney Reeder of Columbus, Nebraska, to Park Ranger David J. Jones. Following a short honeymoon, Davey brought his bride to Coolidge while he completed his work at Casa Grande. On May 2 they left for Wupatki National Monument where "Corky" will have the distinction of housekeeping in "the oldest continuously inhabited house in the United States".

"Doc" Gipe returned to his home in Coolidge on April 17, following a major operation in a Phoenix hospital. Doc. is reported as "getting along fine" and well along on the road of convalescence.

*****SWM*****



THE Supplement



MONTHLY REPORT

THE SAGA OF THREATENING ROCK

INTRODUCTION

By Frank Pinkley, Superintendent, Southwestern Monuments.

Among the dozens of problems at Chaco Canyon National Monument we have one which we call the problem of the Threatening Rock. It has bothered us these many years.

The problem of Threatening Rock resolves itself somewhat as follows: We have a great mass of rock which has been under-cut by the elements. The under-cutting is still going on. The ancient people started to fill the under-cut section with masonry walls and vertical beams. They also built a terrace in front of the Rock.

With these facts before us for study, the geologists tell us there is no fear of the Rock falling in anything like the near future. The engineers are not so certain about the fall being many centuries away; they think there may be danger but are not so definite on how to avoid the danger. The archaeologists are interested in not destroying, covering up, or losing the work the ancient people did in the way of stabilization or preservation, but want such measures taken as will insure its standing for an indefinite period of two or three centuries more. We, as administrators, are standing on the side lines waiting for something definite to show up which will tell us what we ought to do and how much it is going to cost.

Without further introduction we will present the reports of the various technicians.

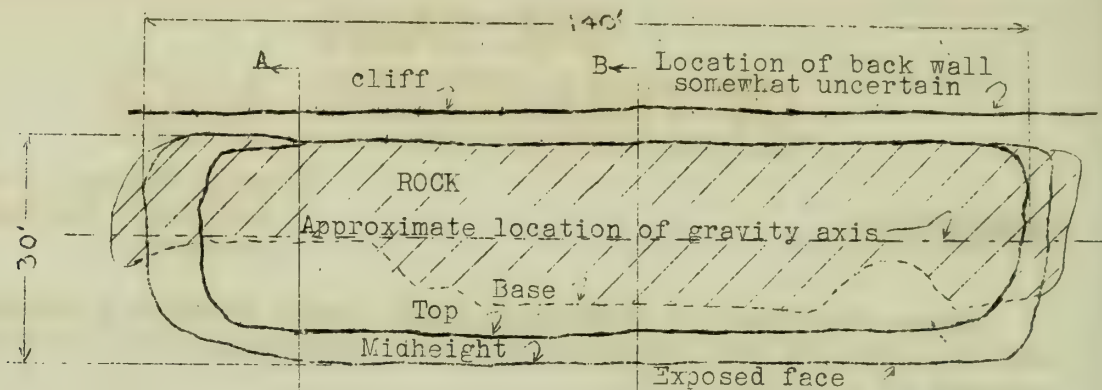
*****SWM*****

THE WEIGHT AND STABILITY OF THREATENING ROCK

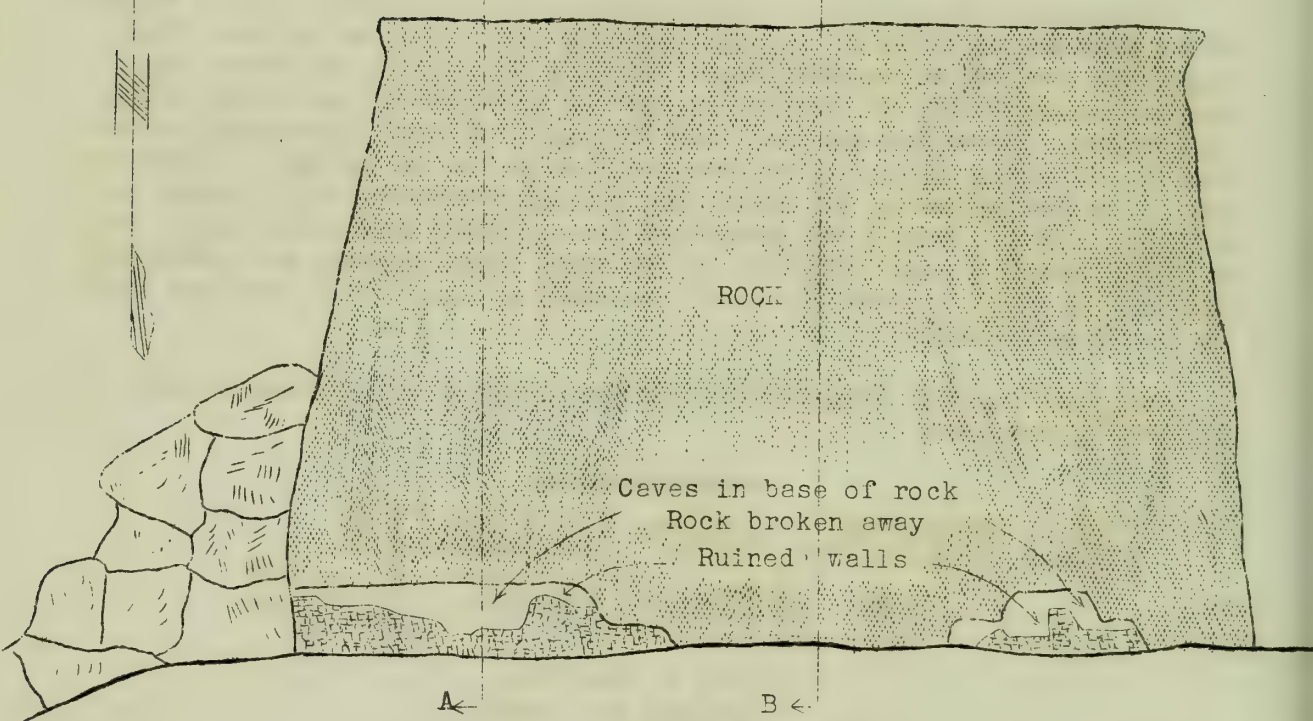
By J. B. Hamilton,
January 18, 1933.

INTRODUCTION

Behind Pueblo Bonito in Chaco Canyon, a huge rock about 100 feet high, 140 feet long, and over 30 feet thick stands slightly detached from the main cliff. It seems to be about to topple over onto the ruins. The ancient Bonitans evidently considered it as unstable as do the modern visitors to the remains of their homes.



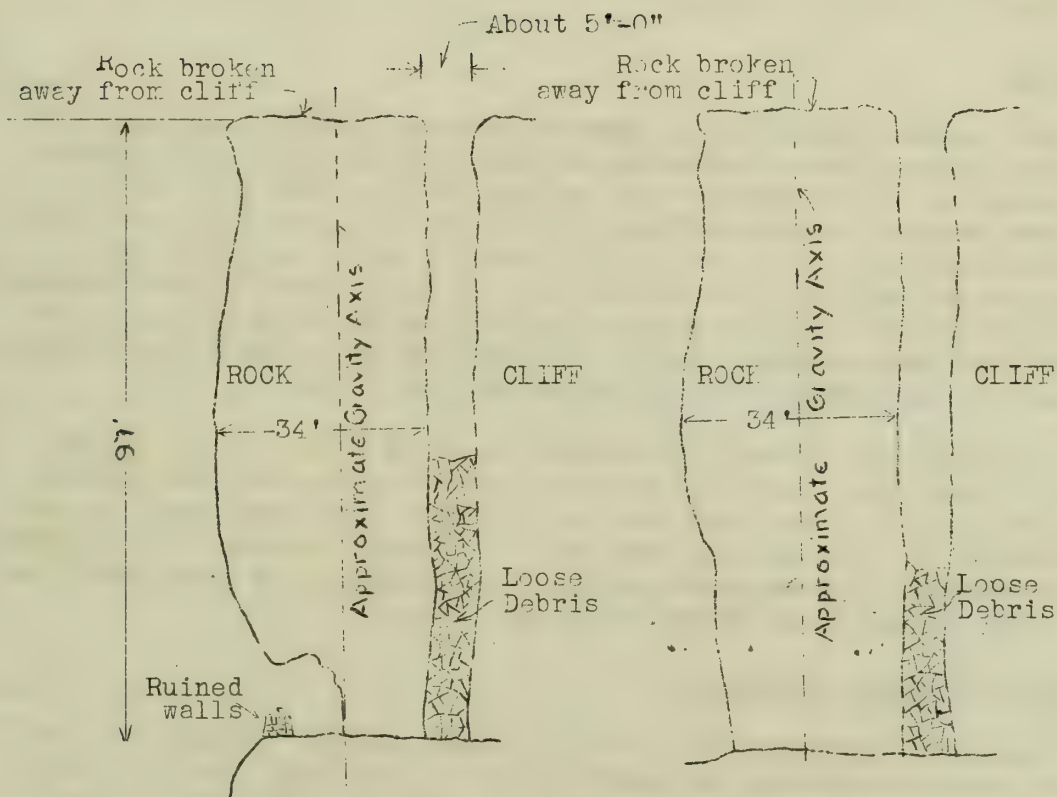
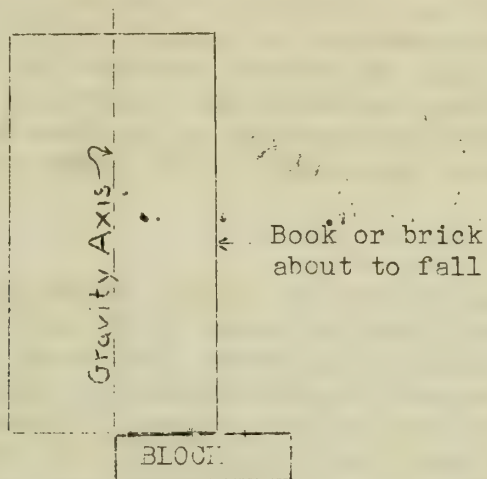
PLAN
showing outline of horizontal sections
of rock behind Pueblo Bonito



FRONT ELEVATION

Approximate location where top
would land if rock fell

20 feet to back wall of Pueblo Bonito



Scale: 1 inch equals 30 feet

Jan. 1933

NM
cc-4944

THE SAGA OF THREATENING ROCK (CONT.)

That they feared it would fall is amply evidenced by the construction they undertook to bolster it up. Of course, their walls were not strong enough to prevent the monolith from falling if it should start. Their efforts probably had a secondary effect in that the abrasive action of the wind and dampness on the base was stopped, thus lengthening the time before undermining would progress far enough to let the rock fall.

Survey

Last October Mr. Julian, custodian of Chaco Canyon National Monument, and I made a survey of the rock to determine, if possible, just how much likelihood there might be of its falling. From a base line below the rock, we determined the area and location of its top, its midheight section and its base. Because of the inaccessibility of the back or north face, these areas are somewhat approximate. The inaccuracy might amount to about five per cent for the midheight section and to ten per cent for the base section.

Stability

The accompanying drawings show these areas plotted one on top of the other, also a front elevation and vertical sections. The approximate location of the gravity axis is shown by the line A-B. If the base were removed by undercutting to the line A-B, the rock would fall. It would then be in the position of a book or brick supported on a block with one half on and one half off, as illustrated in the drawing. But the rock would fall long before all the material in front of the gravity axis was removed. Before the material was undercut as far back as line A-B, the sandstone would crush and spill away.

If you should attempt to support a book or brick on a block of rubber or wax, you would find that the block would crush down faster under the center of the load than at the back. The load would tip and fall before the overhang was made half its width. Because of the great weight involved, the sandstone would act elastically or plastically as the rubber or wax would under the lesser loads.

Condition for Safe Stability

Engineers consider such a weight unsafe against toppling if the smaller area to one side the gravity axis is less than one third the whole area of the base. The survey indicated that about one fourth of the area of the base of the rock lies in front of the gravity axis. This area can be much less and the structure will stand, as the brick on the block does, with practically no pressure area and as Threatening Rock does with only one fourth the base in front of the gravity axis.

possibility of Falling

However, if earthquake vibrations north and south should occur, or

THE SAGA OF THREATENING ROCK (CONT.)

if freezing should cause expansive pressure in water-soaked material between the rock and the cliff, the final tons of force required to send it crashing down might be exerted. It can be said that the result of the survey and the book-recorded science of the engineers agree with the almost instinctive feeling of the ancient savage and the casual visitor--the rock may fall.

Danger to Ruins

If the rock fell, would it destroy the ruins? If in falling it rotated about a point eight feet in front of the gravity axis, the top would land about 20 feet from the back wall of the Pueblo as shown. If the top shattered badly, the momentum of the pieces would probably carry them through the back walls of the ruins.

It is conceivable that the rock could fall and not damage the ruin at all, as most of the momentum might be expended in cracking the block.

Weight

A question as to the weight of the rock has been raised. From measurements of the plotted areas and its height, it is easily determined that it weighs about 30,000 tons.

Insuring Stability

If it should be desired to insure the permanency of the rock, it could be tied to the cliff by anchoring heavy rods or cables into it and the cliff near its top. This would be an expensive undertaking and probably not justified by the likelihood of its falling due to earthquake shocks.

Increasing Stability

It might be advisable to guard against the action of weather, however, by continuing the work of the Bonitans. Horizontal cracks in the face of the base could be grouted under pressure, thus in effect increasing the area of the base in front of the gravity axis. Then earth and debris could be heaped against the front base to further lessen the area exposed to the sapping influence of wind and water. As much of this material as possible should be raked from behind the rock so as to lessen the area against which freezing pressure is exerted and the height at which it is exerted. Finally a waterproof layer might be placed over what material is necessarily left back of the rock so as to keep it dry. If it were dry, expansive freezing would not occur.

Conclusion

If these simple precautions were taken, I see no reason (barring

earthquakes) why the Threatening Rock may not stand another thousand years.

*****SWM*****

PRIMITIVE INDIAN ENGINEERING METHODS AT THREATENING ROCK

By John Y. Keur

September, 1933

Introduction

Pueblo Bonito in Chaco Canyon was constructed by its ancient builders close to the north wall of the canyon. This north wall rises almost vertically to a height of 100 feet directly behind the present ruins. The cliff shows the effects of erosion, its surface is streaked and weatherbeaten, full of cavities which give the face of the rock a lace-like appearance in places. The base of the cliff shows erosion to a much greater extent, here and there wind and sand have caused a deep undercutting resulting in the formation of caves. An enormous block of sandstone has become detached from the cliff and threatens to fall on the west part of the Bonito ruin. This report deals with the attempts which the ancient Bonitans have made to prevent or to delay the falling of this huge mass. The inhabitants of the pueblo must have been aware of the damage that could be done by such a mass of rock when and if it fell, for rock falls and slides are of frequent occurrence in the canyon. It has been suggested (E. L. Hewett, "Ancient life in the American Southwest", page 303) that this "threatening" rock might have been a cause of the abandonment of the pueblo by its inhabitants. The Navajo refer to the rock as Sabaohnnei or Ysabeadnei, meaning "Place-where-the-rock-is-braced-up".

The relation of the rock and the pueblo.

During July and August, 1933, the writer investigated the attempts which the inhabitants of Pueblo Bonito had made to prevent Threatening Rock from falling. The west corner of this rock stands 120 feet from the north wall of the pueblo. The north wall curves away from the rock in such a manner that the further part of the curve is 190 feet removed from the east corner of the rock. Threatening Rock is 100 feet high, 140 feet long, and approximately 34 feet wide (at midheight). If this rock had fallen as a unit without splitting - which was quite unlikely - its west corner would have jarred and probably crushed the back wall and rooms of Pueblo Bonito. If the rock had split while falling, the resulting masses might have rolled right through the back wall which at present shows evidence of four stories. The damage of such an occurrence would have been considerable and it is not surprising that the Bonitans did what they could to prevent such a fall. Their handiwork, now uncovered, presents a marvellous and constructive example of the ancient

THE SAGA OF THREATENING ROCK (CONT.)

engineering methods which they practiced.

The relation of the rock and the cliff.

Threatening Rock stands now entirely detached from the cliff. It is slightly wedge-shaped, with its greatest width at midheight. The vertical split between the rock and the canyon wall is from 10 to 12 feet wide at the top and from three to four feet at the base. This difference in width at top and base is not entirely due to the leaning forward of the rock but rather to the weathering and loosening of smaller sandstone blocks from the surfaces of the cleft. The space between rock and canyon wall is partly filled with these loosened rocks which may have a great effect in hastening the fall of Threatening Rock. Water collects between these loose stones and during freezing weather considerable expansion pressure may be exerted upon the rock.

In addition to a slight forward leaning, the rock also shows a settling in the alluvial mass of the canyon floor. This can be judged by making a comparison of the relative position of the same stratum in the rock and the canyon wall. At some points the difference in levels is eight inches. The rock shows not only a leaning away from the cliff, but its upper part (three fourths of its height) is beginning to split away horizontally from its lower part. Thus a wedge-shaped horizontal crack can be seen at the back of the rock, indicating an additional tilting of the rock on its own base.

The front surface and base of the rock.

The front part of the rock shows a fairly uniform, 'though weathered surface. One large vertical crack, 40 feet from its east end, is visible, extending from top to base. Several other, smaller cracks are present in the front surface. The base of the rock is far from uniform, showing a deeply extending erosion in spots. This undercutting extends in one place from 14 to 16 feet, which is almost to the gravity axis, the width of the rock at midheight being 34 feet. About one fourth of the area of the base of the rock lies in front of the gravity axis. As a result of the erosion at the base, we find several caves, especially at the west base of the rock. If this undercut had been uniform along the entire base, the rock would have undoubtedly fallen long ago. In its present condition, barring earthquakes, the rock may remain standing for centuries, provided that further erosion can be prevented.

The overhang at the base of the rock is greatest at the west end where, over a length of 60 feet, the undercut varies from four to 15 feet. The overhang of the remaining 110 feet is much less, ranging from three to six feet.

The embankment in front of the rock.

The ancient Bonitans constructed a large embankment in front of

THE SAGA OF THREATENING ROCK (CONT.)

Threatening Rock which at the start of this survey appeared as a much-eroded talus. The flat top or terrace of this embankment extended to the base of the rock for a distance of 15 to 20 feet; depending on the erosion. From this more or less horizontal terrace, rocks and sand had formed a slope extending 20 to 30 feet farther to the front. This slope had been previously dug into at right angles to the embankment exposing at two points parts of a rock veneer, five and eight feet long respectively. On the flat top of the embankment, remnants of a wall parallel to the face of the rock could be seen, constructed at the place where the overhang was most pronounced. At the west end of the rock, 60 feet of this wall was still standing, while at the east end a 26 foot stretch of wall was visible. At present the height of these walls does not quite reach up to the overhang, the highest wall fragment now standing comes to within two feet of it. It is probable that originally this wall was constructed clear up to the overhanging parts of the rock.

Determination of the construction of the embankment.

The first part of the work consisted of the exposure of the remaining stone veneer which at one time covered the entire front of the embankment. It was found that the east corner of this veneer extended originally to a point 40 feet beyond the east corner of the rock. This point was marked by a huge block of rock 20 feet long which apparently had been used as a corner stone or starting point for the embankment. Next an attempt was made to locate the west corner of the veneer. At the west end of Threatening Rock, a large pile of fallen rock is present, consisting of huge blocks of sandstone and much debris. At one time this mass of rock might have been in the same position in relation to the canyon wall as we now find Threatening Rock. This fallen pile was present in 1900 and probably referred to by N. C. Nelson ("Notes on Pueblo Bonito" Anthr. Papers Amer. Mus. of Nat. History, vol. 27, 1920, page 389) who raised the question if this fall had occurred during the occupation of the Pueblo. Earlier visitors and investigators give little information about the presence of this particular rock fall. W. H. Jackson states (Report on the ancient ruins examined in 1875 and 1877, 10th annual report of the U. S. Geol. & Geogr. Survey, Washington, 1878, page 442); "The Pueblo was built within about 20 yards of the foot of the bluff, but a talus of broken rock occupies all of this space excepting a narrow passage next to the northern wall, through which the trail passes." From the above it is not quite clear if the mass of fallen rock referred to was present in 1875 or not.

The writer succeeded in following the veneer westward to a point eight feet underneath this mass of rock, indicating that the embankment and its veneer were built before the mass fell. The weight and size of the individual stones as well as the complete absence of laborers made further excavation impossible. The entire length of veneer exposed was 185 feet.

As the next phase of the work, an attempt was made to locate the veneer on the other (west) side of the fallen mass of rock. There a trench five feet wide was made at right angles to the cliff, badly crushed by fallen blocks of stone, some of which were too large to be removed, and interfered with a thorough excavation. These walls might indicate the presence of rooms at the base of the cliff, a possible continuation of a small, previously excavated dwelling consisting so far of one small kiva and a room, located a few yards further west against the cliff wall. If laborers had been available, further excavations might have shown better results. The writer had to abandon further digging due to the cumbersome debris. As yet the west corner and extent of the embankment remain covered. At some future date, this may be determined by removing the debris or by sinking test shafts straight downward from the center of the fallen rock mass.

The veneer, 185 feet long, uncovered is at present in a precarious condition due to the danger of erosion. The veneer was exposed to a height of two to five feet. At intervals of 50 feet, shafts were dug to determine the base foundation of the veneer. The distance from this base to the flat terrace on top of the embankment varied from 16 to 19 feet, indicating the original height to which this embankment was constructed.

The material removed from the front of the veneer consisted of blown and washed sand, stones fallen from above, and, near the base of the veneer, several piles of mixed clay mortar. The veneer itself is in a fair state of preservation. It appears banded in construction, regular rows of larger stones alternating with from one to four rows of much smaller ones. No doorways, entrances or stairways were found.

Behind this veneer and extending to the top of the terrace, a mass of irregular stone set in adobe was uncovered extending the entire length of the embankment. These large and mostly flat stones had been placed horizontally and covered layer upon layer with adobe. However, this mass of stones did not fill the entire space between the veneer and the base of the rock. The width of this stone pier ranges from 14 feet at the west end to 18 feet at the east end, while the terrace is from 28 to 34 feet wide (measured to the base of Threatening Rock.) In order to determine the character of the fill between the stone pier and the rock-base, several trenches were made at right angles to the rock. The fill material consisted largely of a top part of blown sand mixed with stones fallen from the wall above, while below the terrace level the fill was found to be composed almost entirely of a mixture of sand and clay, free from stones. The above mentioned trenches were constructed to the base of the walls erected underneath the overhang of the rock. However, these walls are not present along the entire front of the rock; 60 feet from the east corner extending to a distance of 40 feet west, no evidence of such walls could be seen on the surface. Through the center of this space another trench four feet

wide was made at right angles to the rock. This trench did not show the presence of a wall connecting the east and west walls which had been erected under the overhang. The following evidence relating to the construction of the embankment was obtained from this particular trench. The width of the stone pier was first determined, 16 feet to the front veneer. The distance from this stone pier to the base of the rock was found to be 16 feet also. After the top part of the trench consisting of drifted sand and debris had been removed, it was found that in filling in the space between stone pier and rock, clay and sand had been used; clay near the rock and pure sand near the stone pier. At the top of the trench the sand fill was found to be 10 feet wide and between this fill and the rock a six foot wide area of clay was uncovered. These measurements are taken at right angles to the rock. On excavating deeper the sand area became more narrow, the clay area correspondingly wider. At a depth of seven feet the sand occupied only three feet of the 16 foot trench. The remaining 13 feet were found to be clay. This clay was very closely packed and very hard. It showed evidence of having been poured in layers, slightly tilting away from the base of the rock. The stratification could be clearly discerned. The area occupied by the pure sand between the clay and the stone pier was more or less wedge shaped. In making an interpretation of this unusual construction, the following suppositions can be made: If, at this point, the entire space between the stone pier and the base of the rock had been filled by hard packed clay, any forward settling of the rock would have caused a tremendous pressure on the embankment causing it to be pushed forward which, in turn, would have resulted in a leaning forward and perhaps falling of the front veneer. However, with a sand wedge present, any pushing forward of the clay buttress would have resulted in an upward pushing of this sand, preventing in this manner the weakening and cracking of the front stone pier. In other words the sand would have acted as a sort of pressure absorber.

The part of the clay buttress nearest the rock to a width of two feet was excavated carefully with a trowel to study the rock surface. Gradually in this manner the rock base was uncovered. When approximately 12 square feet had been cleared, faint cracking sounds were detected. Close inspection showed the appearance of fresh cracks in the rock. These cracks were carefully plotted from day to day. Eight separate ones were thus located, varying in length from four to 13 inches. It was thought at first that these cracks might be a result of the drying of the rock on exposure to the air. However, the clay was very dry, due to a slight overhang of the rock no rainwater had fallen directly on it. Also in the lower two thirds of the trench, the rock showed no evidence of cracks whatever. The sandstone layer in which the cracks did form appeared weaker than the underlying layers. The cracks must have been the result of the tremendous pressure from above. The question arises: Is the rock

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still settling? The Threatening Rock stands at present in somewhat the same position as a brick on a piece of soft material such as rubber, with one half of the rock on it, the other half off. (J. B. Hamilton, "Survey of Threatening Rock", Report of the engineer, October, 1932.) As a result of such a position, greatest crushing weight occurs under the center of the load, because the overhang tends to tip the rock at the back. Such tilting can at present be seen at the back of the rock near its east end where horizontal wedge-shaped cracks have appeared. These cracks are from two to three inches wide at the back and extend into the rock for a distance of nearly 15 feet.

The construction of walls under the overhang.

From the terrace level, the Bonitans constructed a wall parallel to the rock and apparently up to the overhanging part of Threatening Rock. This wall is not continuous along the entire length of the rock, it is found only underneath the greatest overhang. There are two such walls, one at the west end of the Rock and one near the east end, with 40 feet of open terrace in between. The east wall starts at a point 22 feet west of the east corner of the rock. This wall is 26 feet long and from one to four feet high at present. The highest fragment now standing is 10 feet above the terrace level and comes to within six feet of the overhang, which at this point is 10 feet. From this outer wall, three smaller walls have been constructed dividing the space into rooms or compartments. In this manner two rooms have been formed. The east corner of this group of rooms forms a large buttress-like mass of stones, eight feet wide and built 10 feet to the base of the rock. The overhang was used apparently as a ceiling for the rooms, remains of plaster still being visible on it. The wall parallel to the rock is very solid, it is four and one-half feet wide at its base, which is three feet below the terrace level, and three feet wide on the top of the highest piece yet standing. Between this small group of rooms at the east end and a larger group at the west end of the rock, is a space of 40 feet which shows no evidence of a connecting wall even at a depth of seven feet. The rock in this particular area shows the least overhang, less than three feet. The wall at the west end is visible for a length of 60 feet, at which point it seems to have been crushed by the rock-fall immediately to the west of Threatening Rock. It could not be determined at this time if and how far this wall continues underneath the fallen mass. With the aid of trenches, the base of the wall was located three feet below the terrace level. At certain points the base of the wall was set in pure sand, at other points the entire base had been constructed on a block of clay protruding one foot from the base of the wall and extending downward three feet. The base of the west wall was found to be five and one-half feet wide while the top of the present highest fragment is three feet wide and comes to within four feet of the overhang. The height of the wall at its highest point is 14 feet from its foundation. This wall as well as the east wall is constructed out of

rather large and often irregular pieces of sandstone, separated by smaller stones. The masonry is not banded as is the front veneer. The part of the wall facing Threatening Rock is nearly perpendicular, the outside surface is slanting, thus forming a wedge-shaped buttress. If the two upper parts of the surface of this wall are continued upward, it is found that the overhang must have rested at one time on a stone wall two and one-fourth feet thick. This, however, did not constitute the entire support given the overhang. Where the wall has fallen away several circular pits are seen in the interior masonry, containing a log each. These vertical logs, of which nine can still be seen, are of approximately eight to ten inch diameter. They have been removed, cut or burned in the past so that at present only those parts surrounded by masonry are still standing. Originally these logs might have extended to the edge of the overhang. Only one log is at present found in a similar condition. Their function must have been to shore up the overhang.

The width of the overhang varies from nine to four feet and the space between the wall and the rock is divided by cross-walls (from 16 to 29 inches wide) into nine (or 10) rooms or compartments. The largest compartment measures nine by five feet, the smallest three by four feet. Some floors of these rooms are constructed of adobe, others of stone. Due to lack of time, no thorough investigation could be made of these rooms. They showed evidence of having been used for sheep corrals or shelters quite recently. The cross-walls were of very poor construction and might have been built by Navajos. No evidence of doorways, ventilating holes, fireplaces, etc., and very few potsherds were found in these rooms. What was the function of these rooms? That question must at present remain unanswered. What was the function of the wall? It seems inconceivable that the Bonitans would go through all the trouble of putting up an embankment and buttress-like wall for the sake of obtaining a dozen small inaccessible rooms under the rock-overhang. The way in which the wall was constructed, i.e., solid, buttress-like, reenforced with vertical logs, underneath an overhang, etc., point to the conclusion that its main function must have been for support. The wall by itself could not support the entire weight of the cliff; the embankment would prevent weathering and enlargement of the undercut of the rock. This embankment would have to be twice as high as it is at present in order to reach the top of the overhang. It seems logical to assume that the same effect, prevention of erosion, could be obtained by building a wall at the points of greatest erosion, shutting them off from the influence of rain, wind, and sand. The embankment in addition formed a solid buttress to prevent or retard a downward sinking of the rock. As a secondary function of the wall on the terrace, we might assume that it was used for additional support. Dr. N. M. Judd ("Everyday life in Pueblo Bonito", Sept., 1925, vol. of the Nat'l. Geogr. Mag.) states on page 260: "They (the Bonitans) even had the presumptuousness to to erect a puny brace of sticks and

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stones to hold back 100,000 tons of solid rock that threatened to topple upon their dwellings." The evidence presented in this survey hopes to establish the conviction that after all, the efforts of the Bonitans were far from "puny" but to them as magnificent as some of our present engineering undertakings are to us today.

Dr. Judd gives 100,000 tons as the weight of Threatening Rock. In order to check this figure, several samples of sandstone were taken and their weight and volume determined. From these figures the total weight of the rock was computed, amounting to approximately 25,000 tons. Can anything be done to insure the stability of such a weight? It would be an expensive and difficult undertaking. The cheapest method would be to remove the rock debris between canyon wall and the rock. It is unlikely that the entire block would fall as a unit, barring earthquakes. The east corner block might be the first piece to go, due to its greater leaning forward and the continuous vertical crack. When this corner falls it will do the least damage because it is farthest removed from the Pueblo wall. It would be of interest to know if the Threatening Rock is moving from year to year. As no measurements or opinions were available, it was decided to establish points on top of the rock and the cliff between which measurements could be taken at intervals in order to show any motion of the rock. To this purpose 12 holes were made, each filled with a copper pin in the center. These twelve holes were located as follows: numbers 1, 2, 3, 4, and 5 on top of Threatening Rock spaced approximately 25 feet apart. Numbers 6, 8, 9, 10, and 11 in roughly corresponding positions on top of the mesa, and numbers 7 and 12 further back on the mesa. The distances between these points were carefully measured and re-checked with a steel tape. Distances determined are tabulated as follows: * (*It was afterward found that a constant error had been introduced into these measurements by the man who held the end of the tape.--Ed.)

From point 1 to point 6; 16 feet, 8 5/8 inches.

"	"	1	"	"	7;	39	"	10 1/2	"
"	"	1	"	"	8;	23	"	8 1/2	"
"	"	2	"	"	6;	25	"	10	"
"	"	2	"	"	7;	35	"	8 1/8	"
"	"	2	"	"	8;	9	"	5 3/8	"
"	"	6	"	"	7;	25	"	8	"
"	"	7	"	"	8;	26	"	7	"
"	"	1	"	"	2;	20	"	5	"
"	"	1	"	"	12;	64	"	11 1/2	"
"	"	2	"	"	12;	46	"	7/8	"
"	"	6	"	"	12;	62	"	2 1/4	"
"	"	8	"	"	12;	42	"	4 3/8	"
"	"	3	"	"	9;	15	"	9 7/8	"
"	"	4	"	"	9;	33	"	3 1/8	"
"	"	5	"	"	9;	68	"	8 1/4	"

THE SAGA OF THREATENING ROCK (CONT.)

From point 3 to point 10;	36 feet,	4 3/8 inches.
" " 4 " " 10;	18 "	9 3/8 "
" " 5 " " 10;	43 "	6 1/2 "
" " 4 " " 11;	55 "	6 3/4 "
" " 5 " " 11;	31 "	3/8 "
" " 1 " " 2;	20 "	5 "
" " 4 " " 5;	37 "	10 1/4 "

Recommendations for preservation and reconstruction.

1. The veneer in front of the embankment should be repaired to a height of five or six feet to prevent further deterioration. The top of this veneer should be protected against water seepage. It was thought at first that the same method might be applied here as the one used to cap walls in Pueblo Bonito, i. e., a layer of cement. On close inspection, however, this method seems far from satisfactory. Walls thus treated in Pueblo Bonito show many areas where water has seeped through in spite of the capping. The cement shows much cracking and water has penetrated through holes and cracks causing the washing out of adobe, loosening of stones, and streaking of walls. In treating the top of the veneer, the following method might prove more successful, viz., setting the entire top row of flat stones in cement. The cement should be applied thinly to replace as exactly as possible the removed adobe, giving the veneer a more natural appearance.

2. The stone embankment behind the veneer should also be repaired and gutters placed here and there to drain the water. The stones should be replaced wherever possible and the ones present set more firmly in cement.

3. The terrace should be cleared of debris, leveled off, and a drain constructed through the entire length in order to remove the water to the east end preventing it from flowing over the veneer.

4. The walls underneath the overhang should also be repaired as much as possible using the stones that have fallen from the walls on the terrace or in the space between the walls and the rock. The top of the wall should be treated in the same manner as the top of the front veneer.

5. The area underneath the overhang should be cleared of the blown sand, exposing the floor levels of the rooms. The cross-walls should also be repaired.

6. Finally, what can be done about Threatening Rock? The inevitable question is: When will it fall? This, of course, cannot be answered directly. The rock may remain standing for a thousand years, except in case of an earthquake. It will be interesting to note if

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yearly measurements between the hubs placed on top will show any appreciable movement of the block, be it downwards, forwards, or sideways. If these shifts should prove to be considerable, measures would have to be taken to prevent the block from falling and damaging the ruins by crushing or jarring. In that case, the rock would have to be anchored by strong cables to the rock of the canyon wall. If, however, the measurements should show hardly any movement it would not be necessary to incur the great expense involved in the above procedure. At any rate it would be an excellent undertaking to remove most of the fallen rocks between the rock and the canyon wall or to cover them with cement to prevent water seepage and the resulting expansion pressure during freezing weather. The writer urges that this interesting example of primitive engineering should be repaired and preserved for the enlightenment of future visitors as soon as possible.

In conclusion the writer wishes to express his sincere thanks and appreciation to Mr. Hurst R. Julian, Custodian of the Chaco Canyon National Monument, without whose help, encouragement, and suggestions this survey would have been impossible. He is also greatly indebted to the members of the staff of the School of American Research, especially to Dr. Edgar L. Hewett, Mr. Paul Walter, and Mr. Paul Reiter, for their criticisms of the work, suggestions, and interpretations. Last, but not least, the efforts of Mrs. Dorothy L. Keur have been stimulating and helpful.

List of artifacts found during excavations.

Sherds of pottery (corrugated, indented, Chaco black on white), one sandal of woven yucca fibre, several corn cobs and corn kernels, many small pieces of rope including a piece bound with feather shafts, a small piece of woven material, one piece of leather-like material, a flat stone showing signs of a swastika design, one large squash stem, and several pieces of cedar wood.

*****SWM*****

PROPOSED STABILIZATION OF THREATENING ROCK

By T. C. Miller,
January 27, 1937

A LETTER

In response to Mr. H. M. Miller's letter of January 21, 1937, concerning proposed stabilization work on Threatening Rock, I had Mr. McKinney take new measurements on the rock. As you know, there are three gauges that were set by the Engineering Department. The west gauge has not moved since my last observation, the center gauge has

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shifted out five eighths of an inch. This makes a total of seven eighths inch for the center gauge. East gauge has moved in one fourth inch. Last observation it was out one fourth inch, so that means the rock has moved in one half inch on the east end. It is believed that the material between the rock and the wall is causing this rock to shift.

I had Mr. McKinney make an estimate of cubic yards of material to be removed. His estimate is 700 cubic yards. This figure seems just a little bit high; however, Mr. McKinney has had a lot of experience moving dirt and rock and figuring yardage so it must be somewhere near right. I believe that the wedge rocks consisting of several large slabs between the Threatening Rock and the cliff are causing this pressure. We have estimated that it would cost about \$100 to move these large slabs as it would be slow tedious work.

I don't know how much money you have to spend on this rock but I believe that three men, counting Mr. McKinney, could accomplish a lot more and do it cheaper than if we worked just one extra man, due to the fact that it is necessary to work in close places and, in some cases, move this material more than 100 feet.

I would recommend that the slabs between the rock and cliff be removed first, then make our ties to the cliff with steel cables. Then, if we should get more money later, I would recommend removing all that yardage between the rock and the cliff. Mr. McKinney can handle this easily with two other laborers.

By using one and one-half or two inch steel cables, the cost of material will not be great, as it will be mostly labor.

*****SWM*****

A LETTER

By J. B. Hamilton,
January 16, 1937.

With reference to Superintendent Pinkley's closing remarks, page 399, Monthly Report for December, 1936, in which he asks for suggestions as to how to support Threatening Rock, I remember advocating at one time the grouting of enough cables into the rock at one end and the cliff at the other to hold the total weight of the rock. This would give a great factor of safety against overturning by gravity and a considerable factor against the heaviest earthquake shocks which are ever experienced.

I wonder if my recommendations are not contained in my report on Threatening Rock written, I believe, the winter of 1932-33. I do not have copies of my correspondence that far back. I do not remember whether I carried my suggestion so far as to estimate the cost, but it would not be great.

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It would not take many one and one-half or two inch cables. They would have to be enlarged at the ends and babitted, I believe, as in the case of suspension bridge hangers. Holes should be drilled deep enough so that the rock would not give way and the cables grouted in place. The cables would have to be protected against weather.

This method of support would be flexible, that is, if the rock should settle vertically, no extra strain would be placed on the ties.

I also recommended that the material between the cliff and rock be cleared away. If that were done it might solve the whole trouble. This mass of material is continually acting as a wedge.

The rock may flex slightly due to temperature changes between its sunny and shady side. Freezing of the damp material back of it may push it away from the cliff slightly. Gravity is always pulling the material down and so permanently holding any giving of the rock that may occur.

I should like to see that material removed, then watch the gauges a year or two. If they still show movement of the detached mass away from the cliff, then it is time to begin shouting long and loud for money to fasten the rock to the cliff back of it. Incidentally, I am strong for not removing the rock. It is too valuable an archeological exhibit to be destroyed.

*****SWM*****

A LETTER

By F. A. Kittredge,
January 29, 1937.

We have copy of Mr. Hamilton's letter of January 16 in which he refers to the Threatening Rock, Chaco Canyon National Monument, and mentions that the question has come up as to whether the Threatening Rock should not be removed because of the possibility of its falling and damaging the adjacent ruin.

To me, the thought of removing the Rock is unbearable. The Threatening Rock is so full of interesting features and is an exhibition of the effort and thoughts of the primitive peoples, that a real historical landmark would thus be destroyed.

Apparently, Mr. T. C. Miller did not know of the engineering studies which have been made in connection with this area, the studies having been made prior to his arrival at Chaco. I would suggest that he refer to Mr. Hamilton's report of January 18, 1933. It will be recalled that Mr. Hamilton and I wrote an article on this same Threatening Rock for the "Engineering News Record" which brought forth many interesting comments.

THE SAGA OF THREATENING ROCK (CONT.)

Mr. Hamilton's report indicates that, barring earthquakes, the Rock may be made stable in several ways:

Anchoring heavy rods into the top of the leaning rock and into the cliff behind it is possible, but rather expensive. There is another method which is simpler, more permanent, and probably more effective, and that is the protection of the foundation from further undercutting by wind erosion and by extending the support slightly. This may be accomplished by digging down to the firm foundation at points where erosion and undercutting are taking place, and pouring a heavy column of concrete. The rock is standing now and erosion has not yet undercut to the point where the center of gravity makes it precarious, and by the placing of this protection, further erosion of the foundation can be prevented.

The concrete face, if it is desired to hide it, may be hidden with masonry laid up just as the ancient peoples placed masonry against the cliff to prevent erosion.

The stabilizing of the Threatening Rock is not a big job and we sincerely urge this method of safeguarding the ruin rather than the removing of this very valuable rock.

*****SWM*****

A LETTER

By H. M. Miller,
February 4, 1937.

Receipt is acknowledged of Mr. Kittredge's letter of January 29 concerning the Threatening Rock at Chaco Canyon National Monument. Mr. Pinkley is opposed to removing the Rock except as a very last resort. Mr. Hamilton feels, I am sure, that the movement of the Rock may be caused principally by the plug of loose debris between its base and the base of the cliff as illustrated on plan which was attached to Mr. Hamilton's study of January 18, 1933. We have already instructed Mr. T.C. Miller, who, though he has been transferred to Aztec, still exercises a supervisory control over Chaco, to proceed, weather permitting, to remove this loose material. This is a relatively small job which we can finance from present funds. Mr. Hamilton thinks, I believe, that after removal of this loose material there may be no further movement of the Rock. We feel that there should also be approved detail plans with real cost estimates so that if the movement is not checked we would be ready to proceed with tying the Rock into the cliff, constructing a support wall, or whatever method is ultimately determined upon as offering the best chances of success. We do think it would be good to settle within the next few months exactly the method which shall be employed and commit it to plans which could be available on short notice.

*****SWM*****

THE SAGA OF THREATENING ROCK (CONT.)

A LETTER

By F. A. Kittredge,
February 12, 1939.

We have Mr. Miller's letter of February 4 referring to the Threatening Rock at Chaco Canyon National Monument which letter, I believe, crossed mine on the same subject.

Am very glad that Mr. Pinkley is opposed to removing the Threatening Rock as I think to do so would be something of a calamity and unnecessary.

The cleaning out of the "plug of loose debris" behind its base as proposed by Engineer Hamilton is very desirable and am glad that you have given the necessary instructions to do so.

It is possible that there may be no further movement of the rock after this plug is removed, but I feel as you do and as stated in my other letter, that there is really a great need for the prevention of erosion and undermining of the Threatening Rock.

I do not think that the tying of the Rock to the cliff is so practical although it is possible. The simple prevention of further undercutting of the foundation and perhaps the increasing of the supporting foundation seems to be all that is necessary.

*****SWM*****

A LETTER

By V. W. Vandiver,
April 7, 1937.

For some time I have been hearing rumblings concerning plans to harness the so called "threatening rock" at Chaco Canyon National Monument. While my comments have not been solicited in this connection, I desire to present them as a matter of record.

In my opinion the term "threatening rock" is a misrepresentation of fact and should never have been originated. I do not mean to imply that the rock is not doomed to crash, for this is bound to take place. It is my belief from observations on the ground that the instant when the collapse will arrive will be in terms of hundreds of years rather than a few years as is now viewed by some.

I have viewed balanced rocks in various types of formations throughout the Southwest. In some localities they form a conspicuous part of the landscape as at Chiricahua National Monument. Many tons of material in some instances are perched up on an almost unbelievably fine pedestal. We know that these features have taken many thousands of years to form and have since withstood the action of the elements in the form of earthquakes, etc., for many years in addition.

THE SAGA OF THREATENING ROCK (CONT.)

The Eagle Nest Rock at the Petrified Forest is a typical example of one of the many which may be cited.

It is my firm opinion that we have nothing to fear from the so called "threatening rock" at Chaco and that any efforts or planning on the part of our staff to control the situation are unnecessary and could best be directed on problems of importance today - NOW.

*****SWM*****

A LETTER

By Frank Pinkley,
April 15, 1937.

We have copy of Mr. Vandiver's memorandum, dated April 7, concerning the Threatening Rock at Chaco Canyon National Monument.

The Service established points to facilitate measuring any possible movement of the rock, some years ago. There is positive evidence that the rock has moved and it was this evidence which induced this office to approve the proposal to remove the debris plug back of the rock. If Mr. Vandiver has not already discussed this little problem with Mr. Hamilton, it is suggested that Mr. Hamilton can give him the full story. It may be that we are unduly alarmed, but in view of the unquestioned movement of the rock in recent years, and its dangerous proximity to Pueblo Bonito, we feel that removal of the debris plug is a wise precaution. No other efforts will be made to stabilize the rock until extended observations have been made and the subject has received further study.

*****SWM*****

FURTHER STUDY OF STABILIZATION OF THREATENING ROCK

By J. B. Hamilton,
April 22, 1937.

On January 18, 1933, I reported on the status of "Threatening Rock", a 30,000 ton mass detached from the main cliff just back of Pueblo Bonito in Chaco Canyon. The inhabitants of the ancient pueblo evidently believed that the rock might fall on their homes.

I reported that if the rock fell it would not reach the back wall of the ruin and that only an earthquake or the slow erosion of time was likely to bring it down. Now I am not so sure that either conclusion is correct.

On November 2, 1935, Andrew Clark set a rod in a horizontal position with one end grouted solidly into the cliff back of the rock

THE SAGA OF THREATENING ROCK (CONT.)

about four feet below its top. The other end entered a pipe grouted into the back of the rock across the gap between it and the cliff. The upper half of this pipe was cut away for a few inches and with a hack saw a mark was made on both the pipe and rod. The last of September, 1936, Mr. Clark set two more such movement-gauges across the gap.

From the Southwestern Monuments Monthly Report for March, 1937, it is seen that the top of the rock has moved outward from the cliff an inch or more since these rods were set. The rock is certainly falling much faster than I thought it could when I first reported.

During February and March, much of the dirt and broken rock lying between the cliff and rock was removed. This makes it plain that the crack is wedge shaped. It is about six feet wide at the top, two feet wide 100 feet below. These figures indicate that the rock may be overturning about a point fifty feet below the surface. Of course, it may have slid away from the cliff at any point above that depth.

I wonder if the old men and women living beneath that rock did not see a much higher mass than we see now, one that would have reached their homes, if it fell. From the photographs (The originals of this and other reports with photographs are on file and available at the office of the Superintendent, Southwestern Monuments, Coolidge, Arizona--Ed.) in my original report it can be seen that they placed a lot of material at its base.

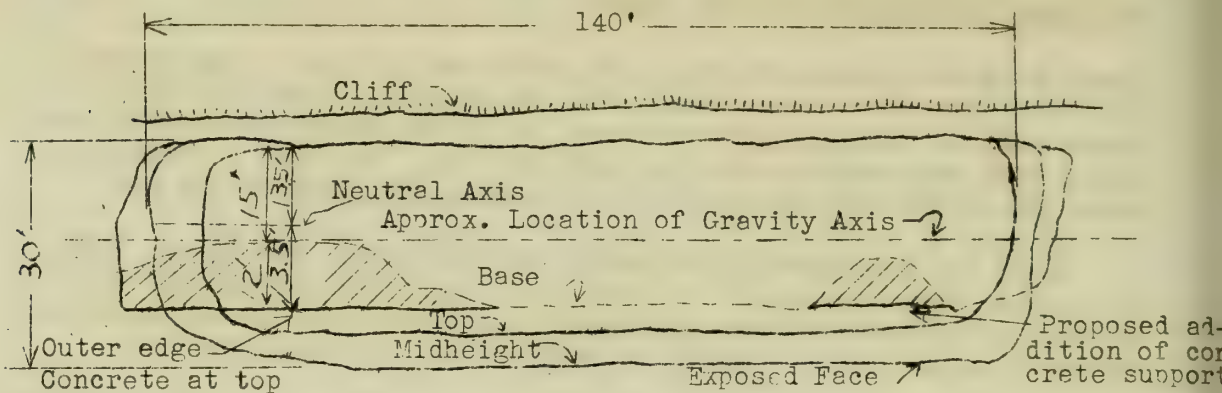
Two methods have been proposed to support the rock and maintain it in its present position because of its archaeological interest. One method would be to build piers in front as the old men did, but to use concrete instead of wood posts and mud mortar masonry. The other method proposed is to grout cables, or rods with turn-buckles, into the cliff on one side and the back of the rock on the other.

The accompanying drawing shows the forces involved for each method. At the left is shown the method of supporting piers, at the right of restraining cables.

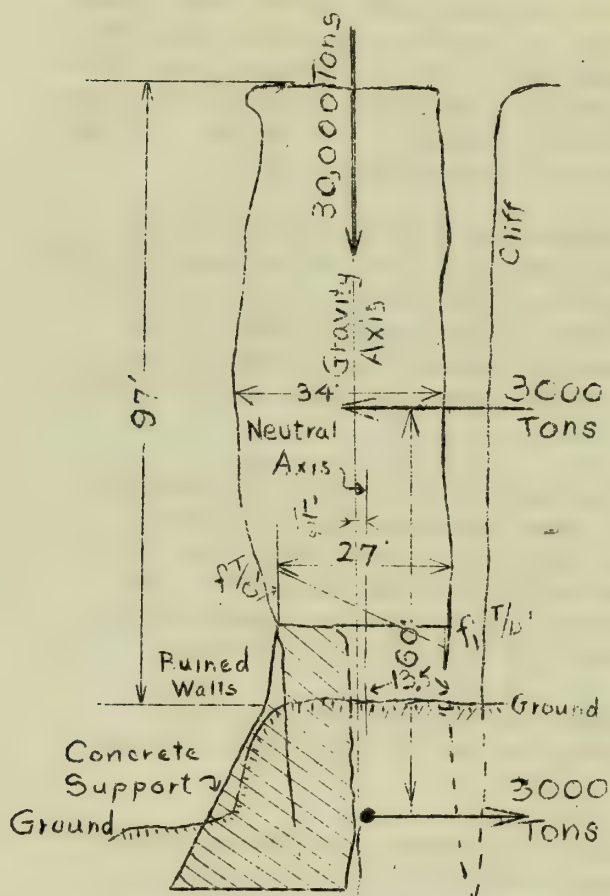
Certain necessary assumptions have been made. As far as these are from the facts, so far are the conclusions.

The portion of the rock above ground is pretty closely calculated to weigh 30,000 tons. The plan drawing indicates that the gravity axis is about 15 feet from the back of the rock and 12 feet from the face at the base.

It is customary to assume for such calculations a force due to earthquake equal to 1/10 of the weight of the mass. This force acts at the center of gravity of the mass. I have assumed that center of gravity as 45 feet above the present ground surface and that the base



PLAN

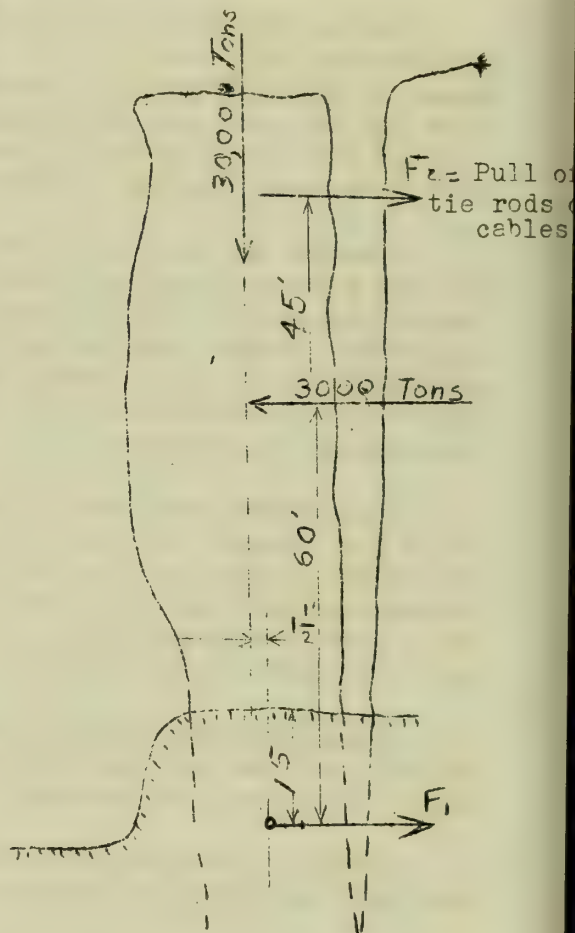


$$f = \frac{N}{A} + \frac{Mc}{I} = \frac{30,000}{140(27)} \pm$$

$$\frac{Gc(3,000) + 11\frac{1}{2}(3,000)}{140(27)^3 \div 12} \quad 13.5$$

$$f = 21.17 (?) * f_1 = -5.27 \frac{T}{in^2}$$

*Undecipherable on blueprint



$$105F_c = 60(3,000) + 11\frac{1}{2}(30,000)$$

$$F_c = 2,140 \text{ Tons.}$$

ASSUMED FORCES ACTING
ON THREATENING ROCK
DURING EARTHQUAKE

(not to scale)

THE SAGA OF THREATENING ROCK (CONT.)

of the rock is 15 feet below it.

In the left hand drawing is shown the forces acting during an earthquake along a plane a few feet above the present ground surface, that is, at the top of the concrete pier which it is proposed will occupy all the available cave-like spaces in the face of the rock. If this much concrete were placed, the rock at the top of it would be approximately a rectangle 140' x 27' with its longitudinal axis one and one-half feet back of the gravity axis.

On the basis of the assumed facts, the pressure on the sandstone at the top of the concrete near the face would be 21.17 tons per square foot. At the back of the rock there would exist a tension of 5.27 tons per square foot. These figures convert into 294 pounds and 74 pounds per square inch respectively.

If we consider a block of the concrete 40 feet long by 10 feet wide on top near the west end of the mass, we find the pressure on it would average $16\frac{1}{2}$ tons per square foot. The total pressure would be 6,600 tons. Add 1400 tons for the weight of the mass of concrete, and the pressure to be supported by the sand and silt under it would be 8,000 tons. At five tons per square foot, the base would have to be 40 feet wide to take the thrust.

At the right are shown the forces acting during the same earthquake if the rock is tied to the cliff by bars or cables. The same assumptions of course are made as before.

This indicates that cables or rods having a strength of 2,140 tons would be required.

Assume that holes two and one-half inches in diameter and six feet deep can be drilled into the cliff and back face of the rock. Safe shearing stress for sandstone is given as 150 pounds per square inch (see page 444, Carnegie Pocket Companion, Twenty-fourth Edition). The circumference of a two and one-half inch hole is eight inches. From that I deduce that each inch of hole will stand a pull of 1,200 pounds. Assume the holes are effective for 50 inches of depth and we could use a rod of an effective strength of 60,000 pounds. At 20,000 pounds per square inch working stress - this calls for a bar of three square inch cross-section or one and fifteen sixteenths inches diameter.

Since each bar is good for 30 tons pull, we would need 72 rods to resist the 2,140 tons mentioned above. Three rows spaced six feet vertically with six feet space between the 24 bars in each row would do the job, I feel quite confident.

Of course on a job of this size, tests should be made with samples

THE SAGA OF THREATENING ROCK (CONT.)

of the stone to make sure of its strength and of its resistance to having cables pulled from it.

These analyses show that to protect the rock against overturning by an earthquake is going to be quite a job. Change the assumptions as you will within reason, I doubt if you can reduce the number of cables by 25 per cent, (unless it is determined possible to increase their size), or the amount of concrete required by 50 per cent.

I am strongly in favor of the method of support by cables or rods for the reasons stated below; more certainty, less archaeological destruction, and greater economy.

1. The method of supporting by rods or cables is susceptible of close engineering analysis before the job is planned. A few dollars spent for testing of samples of the sandstone, a small fee to the Engineering Societies Library for a search of the literature for articles covering experience on anchoring cables to stone, and we can confidently design and closely estimate the cost of doing the job. And we will know ahead of time our factor of safety.

By using rods and turn-buckles we can tighten the rods equally to any predetermined strain we desire by putting a man's weight a uniform distance out on the tightening wrench.

In the case of supporting by concrete, we do not know what we may uncover. I mean I am afraid there may be large holes in the face of the rock well below the present ground surface. We cannot estimate closely the extent of the job in advance. Note also that the analysis shows tension in the sandstone at the back of the rock. We know before we start that we can have no factor of safety.

2. The method of supporting by concrete piers would destroy practically all archaeological value. Even if we cut the concrete base to half that required by the analysis, to 20 feet width, we would have to excavate all archaeological remains from in front of the rock. We would have nothing left but an ordinary rock with a massive concrete face say 10 feet above ground and 10 feet below sloping up to its base.

If we use cables we do not have to disturb the front at all. The story of the old people's attempt at stabilization is there for all to see for practically all time.

3. A rough preliminary estimate of cost is as follows:

Support by Concrete piers

1,600 cu. yds. excavation @ .75	\$ 1,200.00
1,320 cu. yds. concrete @\$25.00	\$33,000.00

THE SAGA OF THREATENING ROCK (CONT.)

Total cost of concrete support \$34,200.00

Tying by Rods and Turn-buckles

140 holes 6 ft. deep each @ \$11.50 per ft.	1,260.00
70 rods 18 ft. long @ 1.50 per ft.	1,890.00
Grouting and tightening turn-buckles on 70 rods @ \$5.	350.00
TOTAL	<u>\$ 3,500.00</u>

If it be thought desirable to protect only against gravity, we might assume that the center of mass is now three feet beyond the center of pressure on the base. Then the over-turning monument would be 90,000 foot tons, which is 40 per cent of the 285,000 foot tons used in the preceeding analysis.

In other words, for 40 per cent of the concrete or 40 per cent of the rods or roughly 40 per cent of the expense above, we can guarantee that the rock will cease moving unless an earthquake comes along.

*****SWM*****

FURTHER DATA ON THREATENING ROCK

By J. B. Hamilton,
June 23, 1937

On June 16 my attention was called by Custodian McKinney to some cracks in Threatening Rock to which I had not paid any particular attention before.

One crack, some 30 or 40 feet from the east end of the rock, extends from top to bottom and completely through it. This portion of the rock, around 30 x 40 feet or 30 x 40 feet in plan, is separated by a horizontal crack about seven feet above the ground surface from the embedded portion below the crack.

Now that earth has been removed from back of the rock, the fact that this pillar is separated from the main portion of the rock can be clearly seen. The horizontal crack does not extend westward beyond the vertical crack.

It is interesting to note that the movement gauge which Mr. McKinney states did not move during the month of May is in this pillar. The main portion of the rock settled back slightly.

I believe that if all the earth and rock debris back of the rock were removed, this settlement back might be enough to drag the pillar

with it. I should very much like to obtain an appropriation of \$500 or \$600 to complete this clearing out behind Threatening Rock.

Picture No. 3 of the west end of the rock I took from approximately the same place as I took ch. c. 32H18 about five years ago. (See my report of July 18, 1933). I have faint hope that by the use of enlargements or magnifiers the movement of the horizontal crack or of the top of the rock might be measured. The height of the rock at that end, 97 feet, could be used for scale.

*****SWM*****

FURTHER DISCUSSION ON STABILIZATION OF THREATENING ROCK

By F. A. Kittredge,
July 2, 1937.

Was very glad to have your (Hamilton's) report of June 23 giving "Further Data on Threatening Rock at Chaco Canyon".

Your new findings; that is, that the rock is tipping back toward the cliff slightly, is very interesting.

I have been trying to figure out the reason for this action. It does not sound logical that the elimination of that wedge of earth would be sufficient cause for a backward tilting. It seems more likely to me, on the meager information at hand, that the compacted earth in the crevice served as a protection of the foundation of the rock against saturation. Now with the elimination of the earth or waterproofing, rain water is permitted to reach the foundation. It may have penetrated to the same soft material underlying the Threatening Rock and is softening it. The exposed face, which is subject to water erosion is, of course, dry and solid and will remain so until there is enough water to penetrate to the face of the rock.

The softening of the back of the foundation; that is, under the crevice, would thus have a tendency to let the back end of the Threatening Rock downward and thus tilt the rock back toward the cliff. At the same time, however, strains would be introduced because the softening could hardly be expected to be uniform. Thus we might expect cracks in the Threatening Rock running more or less at right angles to the big crevice. Have you had any rains or sufficient snow to permit saturation of the newly exposed earth in the bottom of the crevice and thus produce saturation of the foundation?

It seems to me that to try to induce a situation which will permit the Threatening Rock to tip back into place is very dangerous. We cannot possibly expect to tip it back by any means except by saturation and

THE SAGA OF THREATENING ROCK (CONT.)

settlement in the foundation and this cannot be done with any uniformity, and if tried it would probably result in cross-cracking the entire rock and its early failure.

You will recall that some five or six years ago when you and I reviewed this project, that I proposed the ceiling of the crack so that moisture could not get into it. We did not give much consideration to this thought at the time, but now since the new developments, I am inclined to think that our urgent need is the waterproofing at the bottom of the crevice so that no water can reach the foundation.

This could be accomplished perhaps by guniting the bottom of the crevice covering the dirt which is now in there and bringing it up on the sides of the crevice sufficiently so that the asphaltic material would serve as a trough to carry off the water. There are other methods by which this could be accomplished but no need to mention them at this moment.

I would like to have your thoughts in connection with this project, and think seriously as to whether the separation of the foundation below the crevice could be the cause for the back-tilting of the Threatening Rock.

If guniting of the bottom of the crevice is considered best, then at the same time the face of the soft foundation material supporting the Threatening Rock could also be gunited to prevent further wind erosion. If the Superintendent should want this done, then of course the material used should be of a natural color and of course it could be rendered still more natural by throwing the natural sand material into the face of the wet gunit.

We have a gunite machine at Colorado National Monument owned by the Park Service, which could be used at Chaco as soon as it is through with its present work.

*****SWM*****

A LETTER

By J. B. Hamilton,
July 13, 1937.

I have put off commenting on your (Mr. Kittredge's) letter of July 2 until I had read the Custodian's June report. From that I gather that the top of the rock has moved back toward the cliff about one fourth inch since the removal of part of the debris behind it.

I don't think there was enough rain during May and June to soak the fill behind the rock to a depth of more than an inch at any time. Debris removed was dry as dust in spite of a wet winter. Personally, I believe that the outward movement has been due to the wedging action of the

THE SAGA OF THREATENING ROCK (CONT.)

debris behind the rock. I still hope that all the debris can be removed to a uniform level at or slightly below the ground surface.

As it is now, the debris stands quite high behind the rock at its west end. The backward movement, if it continues, will compact this until undue strain will be exerted on this portion of the rock.

I am in accord with you as to water-proofing the surface of the dirt behind the rock which we cannot remove. I would prefer to use a bituminous waterproofing. Guniting would crack along the center if compressed, or separate from the walls of the crack if outward movement is resumed.

Briefly, after the debris is removed as completely as possible from behind the rock, I should like to see the surface of what is left sloped either to one end or from the middle toward each end and this surfaced with a trough of waterproof bituminous mixture which should be so proportioned as to be quite flexible.

I cannot conceive of the foundation being water soaked from rains directly. Possibly water-fed seepages might do it. My main purpose in using the waterproofing as mentioned above would be to prevent soakage of the top few feet of debris which might expand by freezing.

Referring to the bottom paragraph of the first page of your letter: if the foundation is 120 feet below the top of the rock and the rotation is taking place about an axis 15 feet from the back of the rock, a backward movement of one foot at the top would amount to one and one half inches downward at the back corner. I presume the material under the back corner is quite loose unless water puddling has occurred. Quite possibly compaction to the extent of one and one half inches or more can take place.

The horizontal crack is full of nothing but air. This is apparent as one walks back of the rock and sticks his hand into the crack. Undoubtedly there are spalls deeper in this crack which would prevent it completely closing. A similar condition may exist deeper down under the main portion of the rock, but that is only guessing.

*****SWM*****

SECOND GEOLOGICAL REPORT ON CHACO CANYON NATIONAL MONUMENT

By Charles N. Gould.

My first report on Chaco Canyon National Monument, No. 54, was written from an inspection made July 7, 1936. On this trip I was

THE SAGA OF THREATENING ROCK (CONT.)

accompanied by Associate Geologist Vandiver. In this report I attempted to describe the topography and geology of the monument and the surrounding area, and to it reference is made for essential data on these subjects.

On my second inspection, made June 9, 1937, which forms the basis of the present report, I was accompanied by Earl A. Trager, Chief of the Naturalist Division of the National Park Service, and by Mr. Vandiver.

One of the chief matters of interest at Chaco at this time is the so-called Threatening Rock. (See "Threatening Rock", by Dr. and Mrs. John Keur, page 389, Supplement for November, 1935, also "Threatening Rock", by A. E. Clark, page 209, Supplement for September, 1936--Ed.) The valley, half a mile wide, has been carved by water, and other agents of erosion into the Mesa Verde sandstone. This sandstone is rather soft, gray to brown rock which occurs in many places in southwestern Colorado, northwestern New Mexico, and adjacent parts of Arizona and Utah. The thickness of the Mesa Verde varies up to several hundred feet. At Chaco it is more than 200 feet thick. The lower 100 feet weathers into precipitous bluffs which line the valley and enclose the level bottom land on both sides of Chaco Wash.

The Mesa Verde sandstone is cut by a series of master joints through which water percolates. As erosion progresses and the sandstone walls weather away, great blocks of sandstone are separated from the main body along these joints forming cliffs. Eventually these blocks will break away and fall into the valley.

Threatening Rock is the name that has been given to one of several similar blocks of sandstone in Chaco Canyon National Monument. The dimensions of this block, as given us by Ranger Hastings, are as follows: Length, 140 feet; thickness, 34 feet; and height, 97 feet. The weight is estimated as 30,000 tons.

During the past few years considerable notoriety has been given to Threatening Rock. Fear has been expressed that it might fall, and in falling crush part of Pueblo Bonito Ruins. So potent has been this fear that steel rods, with gauges, have been placed near the top of the rock in order to measure the amount of fluctuation. (See pg. 168 of SWNM Monthly Report for September, 1937). Readings on these gauges indicate that there appears to be a very slight movement at the top of the rock, amounting sometimes to a quarter or half an inch during a period of three months. The last reading showed that the rock appears to be moving inward toward the top of the cliff. This may be due to the fact that a certain amount of loose rock and other debris has been removed from behind the rock.

It would seem that the prehistoric people, who a thousand years ago lived in Pueblo Bonito at the base of the rock, had the same fear

THE SAGA OF THREATENING ROCK (CONT.)

as the moderns, for a masonry wall was constructed, evidently to hold or brace the rock. Much of this wall has fallen into decay.

In my first report, No. 54, I say:

"Just back of Pueblo Bonito a huge mass of the Mesa Verde Sandstone has been detached from the cliff. It is known as Threatening Rock. The mass is approximately 100 feet high, 100 feet wide and 20 feet thick.

"The prehistoric people built masonry walls at the foot of this rock to prevent erosion. Much concern has recently been felt for fear the rock might fall. To my mind there is little immediate danger. It has stood 1,000 years since the Old People first attempted to strengthen the foundation, and bids fair to stand for another 1,000 years."

Mr. Vandiver in a memorandum dated April 7, 1937, expresses the same general idea.

Mr. Trager is in substantial agreement, as, I believe, are all geologists who have seen the rock.

Undoubtedly the rock will fall eventually, as do all rocks along cliffs. The time of this fall cannot be predicted accurately. So many different factors enter into the problem. But it is our best judgment that no fear need be felt that the rock will fall soon. Rather would we measure the time in scores or hundreds of years. Very possibly future generations a thousand years hence will see Threatening Rock standing as did the pueblo people a thousand years ago. So, why worry?

Another problem at Chaco, and to my mind much more serious than Threatening Rock, is the matter of adequate water supply. The greater part of the water now used both by those connected with the Monument and by the School of Archaeology of the University of New Mexico which has a summer camp nearby, is obtained from shallow wells in the valley. There are three of these wells, each 16 to 18 feet deep. These wells are reputed to yield 300 to 500 gallons each per day.

A well was drilled to a depth of 465 feet. It produced a small amount of water, estimated to be 250 gallons per day. However, the water was highly mineralized and impregnated with various salts, including sulphur, table salt, and gypsum, so that it is not being used. The water from this well is probably obtained from the Mancos shale which is known to carry considerable amounts of mineral salts.

Until I have had more opportunity to study the literature I shall defer specific recommendations on obtaining a larger water supply from a deep well at Chaco. Additional shallow wells, 15 to 20 feet deep

THE SAGA OF THREATENING ROCK (CONT.)

the yardage of material the ancient people put under and in front of that overhanging mass to appreciate how serious they considered the problem upon which they expended such an immense number of man-days.

From what I have said above, you might assume that I thought these Indians were smart enough to recognize two problems: first, the danger of the erosion which was cutting back toward the center of gravity and would eventually cause the fall of the 25 or 30 thousand tons of material above; second, that, although they might fill under the overhang and stop the erosion, there was still danger of the whole block of Threatening Rock, reaching down 50 or 75 feet under ground, leaning forward until, as we would state it, the center of gravity fell outside the middle third and it became unstable. This second danger would have caused the construction of the terrace built in front of the Rock which is reported and described by Dr. Keur. If they did build the terrace for this purpose, would you consider it evidence that they had checked the crack behind the Rock until they knew it was widening and that something must be done? These are interesting questions to speculate about whether we can get the answers or not.

*****SWM*****

SOUTHWESTERN MONUMENTS

MONTHLY REPORT



M A Y - - - 1 9 3 8

John A. ...

DEPARTMENT OF THE INTERIOR
NATIONAL PARK SERVICE

SOUTHWESTERN MONUMENTS

MAY, 1938, REPORT
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HEADQUARTERS

Activities of Mechanic	450-d	Casa Grande Visitor Records	450-k
Bird Banding.	450-h	Visitor Statistics.	450-i
Branch of Education.	450-d	Personnel Notes	450-m

THE SUPPLEMENT

Romance of Emigrant Names at El Morro, by Robert R. Budlong.	451
Volcanoes and National Monuments in the Southwest, by Charles N. Gould.	458

SOUTHWESTERN MONUMENTS PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, superintendent; Hugh M. Miller, assistant superintendent; Parke W. Soule, chief clerk; J. H. Tovrea, assistant engineer; Dale S. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Matt N. Dodge, junior park naturalist; Luis A. Gastellum and Russell Landry, clerk-stenographers; Ira G. Goodwin, CCC clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

FIELD STATIONS	VISITORS, 1937	ACRES
1. <u>Arches</u> :	1,000; Moab, Utah; Harry Reed, Ranger-----	4,520.00
2. <u>Aztec Ruins</u> :	14,303; Aztec, N. Mex.; T. C. Miller, cust.; James W. Brewer, park ranger.	25.88
3. <u>Bandelier</u> :	14,380; Santa Fe, N. Mex.; C. G. Harkins,-----	26,026.20
	custodian; George H. Sholly, grader operator.	
4. <u>Canyon de Chelly</u> :	1,422; Chin Lee, Ariz.; Johnwill Faris, custodian.	83,840.00
5. <u>Capulin Mountain</u> :	26,100; Capulin, N. Mex.; H. Farr, cust.---	680.37
6. <u>Casa Grande</u> :	33,661; Coolidge, Ariz.; A. T. Bicknell, cust.; Don W. Egermayer, park ranger; Jimmie Rodgers, Strempel Coyle, Victor Scholz, Teddy Savage, James Holt, and Frank Morales, CCC guides and helpers.	472.50
7. <u>Chaco Canyon</u> :	8,014; Chaco Canyon, N. Mex.; Lewis T. McKinney; Homer Hastings, temporary park ranger.	21,512.37
8. <u>Chiricahua</u> :	9,228; Douglas, Ariz.; Frank L. Fish, cust.-----	4,480.00
	Enrollee Minton and CCC Guides Homer Bennett and William Stone.	<u>6,407.00</u> 10,887
9. <u>El Morro</u> :	2,298; Ramah, N. Mex.; R. R. Budlong, cust.-----	240.00
10. <u>Gila Cliff Dwellings</u> :	250; Cliff, N. Mex.; no custodian--	160.00
11. <u>Gran Quivira</u> :	4,414; Gran Quivira, N. M.; G. L. Boundey, cust.	610.94
12. <u>Hovenweep</u> :	500; in charge of T. C. Miller, Aztec, N. Mex.---	285.80
13. <u>Montezuma Castle</u> :	9,813; Camp Verde, Ariz.; Earl Jackson, custodian; Edwin C. Alberts, park ranger.	520.00
14. <u>Natural Bridges</u> :	740; Blanding, Utah; Zeke Johnson, cust.--	2,740.00
15. <u>Navajo</u> :	329; Kayenta, Arizona; John Wetherill, custodian; William F. V. Leicht, park ranger.	360.00
16. <u>Organ Pipe Cactus</u> :	5,000; Ajo, Ariz.; no custodian-----	330,670.00
17. <u>Pipe Spring</u> :	1,042; Moccasin, Ariz.; Leonard Heaton; cu.--	40.00
18. <u>Rainbow Bridge</u> :	300; Tonalea, Ariz.; no custodian-----	160.00
19. <u>Saguaro</u> :	20,000; Tucson, Arizona; no custodian-----	63,284.00
20. <u>Sunset Crater</u> :	10,000; Flagstaff, Ariz.; P. Beaubien-----	3,040.00
21. <u>Tonto</u> :	5,368; Roosevelt, Ariz.; T. Onstott, in charge-----	1,120.00
22. <u>Tumacacori</u> :	18,472; Box 2225; Tucson, Ariz.; L. Caywood, cust.--	10.00
23. <u>Walnut Canyon</u> :	10,772; Flagstaff, Ariz.; P. Beaubien, rang.--	960.00
24. <u>White Sands</u> :	91,532; Alamogordo, N. Mex.; Tom Charles,----	142,987.00
25. custodian; James B. Felton, park ranger; Joe Shepperd, grader operator.		
25. <u>Wupatki</u> :	2,080; Flagstaff, Ariz.; David Jones; in charge----	35,865.00
26. <u>Yucca House</u> :	400; Cortez, Colo.; T. C. Miller; Aztec, N. Mex.---	9.60
Total--291,426 visitors, 1937; 1,132 sq. mi.; acres-----		<u>724,619.96</u> 6,407

731,026.96

OPENING

By Superintendent Frank Pinkley,
Southwestern Monuments,
Coolidge, Arizona.

Dear Mr. Director:

It just happens that we have two transcontinental lines of railroad crossing our district from east to west. It also happens that each railroad is paralleled by a transcontinental highway. The result is that as we drive the district we can keep our finger on the pulse not only of business in our own district, but in the country to the east and west of us. The other day I made a drive of 360 miles to the east in the south part of the district, and we commented on the lack of freight being moved on the transcontinental railroad that day and on the comparatively few number of cars we were passing. That night we asked the owner of the cabin ground, who had been in business there for several years, how business was and were told that business was rotten. The next night we had the same reply from the owner of another cabin ground. The next day one of the fine hotels at El Paso said business was 'off'. The next day, on a 420 mile drive west, we again noticed the lack of traffic both on the highway and the railroad. A few days later our monthly reports began to come in from four southwestern states. Analyzing the figures from those monuments where we get the most accurate count, I noted a dropping off in traffic. Testing these impressions with several of the visitors at Casa Grande, where we have our headquarters, the majority response is that business is still on the down grade in the Southwest.

We have had some personnel changes during the month. Jimmie Brewer has begun work at Aztec as permanent ranger. Don Egermayer has also become a permanent ranger at Casa Grande. Hastings has returned to the Chaco Canyon for the summer season as a temporary ranger. Zeke Johnson has gone out to the Natural Bridges for the summer as resident Custodian. David Jones has gone to the Wupatki National Monument for his summer tour of duty. Further changes will become effective June 1, or soon thereafter, when more summer men go on duty. We received notice during the month of the transfer of Ranger James Felton to duty at Fort Jefferson, but he will not leave until the middle of June.

We had 22,649 visitors stop in to see us this month, a slight increase over last year, but a decided decrease from last month. We are now in a little 'between season' when the winter monuments have passed their peak and the summer monuments have not yet picked up the load, but we are not looking for a record breaking season. The visitors we have seem generally interested and we seem able to hold them so far as our records indicate.

The CCC camps at Bandelier, Chiricahua, Chaco, and Casa Grande continue to operate successfully. The new camp at Flagstaff is not yet working, the Army not yet having finished the construction. We hope to get it in operation by the end of June.

OPENING (CONT.)

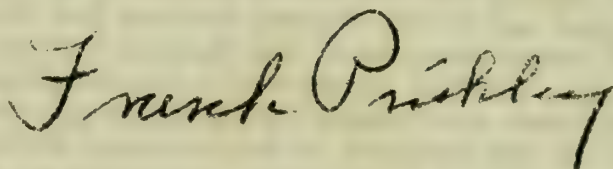
Financially we have been very busy this past month. Our preliminary estimates having come through in very good shape, we put out the final estimates, which, as is mentioned elsewhere in this report, means, with our twenty-six monuments, a bulky paper of four or five hundred pages. We are now trying to close out the current year to the greatest good of all concerned and, for that purpose, have had a recent change in outline of work for some two hundred items.

Boundary matters have not advanced much during the month. We are awaiting your action on Arches, the field work having been completed. Field work on Saguaro is also completed and it is now awaiting Washington action. The Chiricahua extension is now waiting, so far as we know, for the proclamation. A small extension to Walnut Canyon is awaiting field action and we will be able to report on it within a few days.

A petition seems to have been submitted during the month to the effect that we move the Organ Pipe Cactus National Monument to the west some miles so we will not bother a cattle man who has 500 head of cattle on the 300 square miles of the present monument area. We have not yet seen a copy of the petition, but will try to investigate the matter during the coming month.

June bids fair to be a busy month with us at these headquarters, as we will have the extra duties of closing out the current fiscal year and preparing to open the new one on top of the regular pressure of business which we always seem to have going through this office.

Cordially,

A handwritten signature in cursive script, reading "Frank Pinkley". The signature is written in dark ink and is positioned above the typed name.

Frank Pinkley,
Superintendent.

CONDENSED REPORT

IN WHICH HIGHLIGHTS OF THE MONTH ARE GIVEN

Coolidge, Arizona,
June 1, 1938.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for the month of May, 1938, follows:

TRAVEL	May 1938	May 1937	May 1936	To First of May	Travel year to date
Arches	170*	100*	100*	596	766
Aztec Ruins	1,707	1,568	1,172	8,150	9,837
Bandelier	1,087	1,395	833	3,942	5,029
Canyon de Chelly	193	222	158	349	542
Capulin Mountain	1,500	1,200	1,500	4,700	6,200
Casa Grande	2,433	2,689	2,274	24,138	26,621
Chaco Canyon	851	796	496	2,217	3,068
Chiricahua	941	1,013	462	4,291	5,232
El Morro	175	228	---	830	1,005
Gila Cliff Dwellings	10*	---	---	25	35
Gran Quivira	279	531	575	1,335	1,614
Hovenweep	100*	250*	---	---	100
Montezuma Castle	789	907	773	4,394	5,183
Natural Bridges	20	---	---	147	167
Navajo	22	23	---	117	139
Organ Pipe	100*	---	---	5,000*	5,100*
Pipe Spring	96	33	392	945	1,041
Rainbow Bridge	26	---	---	76	102
Saguaro	1,500*	---	---	17,072*	18,572
Sunset Crater	488	---	283	2,011	2,499
Tonto	295	413	365	3,552	3,847
Tumacacori	1,018	1,551	705	10,266	11,284
Walnut	1,153	667	648	3,117	4,270
White Sands	7,452	7,921	11,880	39,097	46,549
Wupatki	184	---	166	585	769
Yucca House	60*	56*	---	70*	130
TOTALS	22,649	21,463	22,682	137,052	159,701
Same date one year ago					134,714
Increase to date					24,987

*Estimated

CONDENSED REPORT (CONT.)

Travel to the Southwestern Monuments during May, 1937, was slightly greater than that for the corresponding month in 1937. Although business men all over the Southwest claim that the tourist business is very bad, it is expected that traffic to the various monuments administered by this office will probably exceed that for last year.

This spring has been an abnormally dry one with high winds which have stirred up many dust storms. Only two monuments have reported plenty of moisture--Natural Bridges and Capulin Mountain. There will very likely be a water shortage in some irrigation districts this summer and it is quite likely that temperatures in the southern part of the Southwest will be even higher than usual.

100 ADMINISTRATIVE

123 Inspections by National Park Officers

Walnut Canyon - A. T. Bicknell; Dorr G. Yeager; L. C. Cook; J. S.

Barrows; W. C. Hilgedish; A. R. Thompson; A. E. Kuehl; J. H.

Tovrea; Mrs. R. E. Folk; Dale S. King; Charlie R. Steen; H. B.

Hommon; H. A. Montgomery; D. J. Jones (Page 389).

Tumacacori - Dorr G. Yeager; W. H. Wirt; Ward Yeager; D. W. Egermayer;

Dr. Herbert E. Bolton; William Hogan. (Page 390).

Arches - Zeke Johnson; Jesse Nusbaum; Dr. H. C. Bryant; Charles N.

Gould; W. B. McDougal (Page 394).

Chiricahua - Charlie Steen; Dorr Yeager; William Wirt; Ward Yeager

(Page 396).

Gran Quivira - Dr. H. C. Bryant; Dr. H. E. Bolton; R. F. Lee; E. H.

Abrahams; W. R. Hogan; G. P. Hammond; Mrs. R. E. Folk; W. W.

Yeager; W. H. Wirt; Dale King (Page 399).

Aztec Ruins - Lewis McKinney; M. J. McColm; L. F. Cook; A. R.

Thompson; J. S. Barrows; Dr. H. E. Bolton; W. R. Hogan; John H.

Diehl; Charles Richey (Page 402).

Wupatki - Al Kuehl; Jack Haile; H. R. Rothrock; Paul Beaubien; Mrs.

A. S. Folk (Page 408).

Casa Grande - W. W. Wirt; Ward Yeager; Park Naturalist Frank Brockman;

Millard Singerman (Page 412).

White Sands - Dr. Charles N. Gould; Lyle Bennett; V. L. Randeau; Dorr

G. Yeager; Charlie R. Steen; Cecil Doty (page 422).

Chaco Canyon - Dr. Herbert E. Bolton; W. R. Hogan; Jack Diehl; (page

428).

Natural Bridges - Dr. H. C. Bryant; Dr. Charles N. Gould; Dr. W. B.

McDougal (page 434).

Capulin Mountain - Jack Diehl; Charles Richey (page 433).

Bandelier - Mrs. Renow Folk; Mr. E. H. Abrahams; R. E. Lee; Dr. H.

C. Bryant; Richard Prunn; Dr. Herbert E. Bolton; John R. Nagel;

W. B. MacDougal; W. R. Hogan; Charles N. Gould; Dorr G. Yeager;

Dale S. King; Charlie R. Steen; Hillory Tolson; Milton J. McColm

(Page 440).

Pipe Spring - Edwin D. McKee; H. E. Rothrock; Al Kuehl (Page 443).

Montezuma Castle - M. F. Christianson; J. H. Haile; Dave Jones;

CONDENSED REPORT (CONT.)

A. T. Bicknell; Gene Stonehocker; A. C. Kuehl; J. H. Tovrea.

150 New Equipment

Walnut Canyon - A study skin case, filing cabinet, and drawing board were received from the Western Museum Laboratories (Page 389).

Aztec Ruins - Three study skin cases and an herbarium case were received from the Western Museum Laboratories (Page 400).

Chiricahua - A gas range was received by transfer and six museum storage cases from the Western Museum Laboratories (Page 397).

Montezuma Castle - A 550-gallon storage tank and pump for gasoline; two study skin cases; a typewriter.

Pipe Spring - A study skin case and several tools (Page 446).

Wupatki - One Electrolux refrigerator; one three burner gas stove; one herbarium case; one steel letter file (Page 409).

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

210 Maintenance, Unusual

Canyon de Chelly - Headquarters area was graded and custodian's residence plastered with bitudobe. (Page 423).

El Morro - Pipe line from the Rincon to monument boundary was repaired and straightened (Page 436).

Montezuma Castle - Entrance road grading project about 80% complete; a temporary incinerator has been dug at the camp ground.

Tonto - Maintenance of trails was carried on throughout the month (Page 425).

Tumacacori - For stabilization of the cemetery wall, 1,500 adobe bricks were made and the barrow pit filled. The wall has been built up nearly to its original height and is now ready for a capping of fired brick which will be laid during June (page 392). A gasoline tank and pump have been installed at the southeast corner of the garage (page 392).

231 CCC Construction

Walnut Canyon - Buildings for the new CCC Camp NM-5-A are being completed and the camp will be moving in very shortly (page 389).

Bandelier - All flooring in Unit #2, Hotel Development, has been completed. First plaster coat applied to Employees' Dormitory. Walls of Operator's Residence completed to viga height and vigas installed. Power house completed. New roof put on the shop in the Utility Area, new doors and windows installed, and a concrete floor laid. A crew has been kept at work in the rock quarry all month.

Casa Grande Side Camp

Outside plastering of shop completed. Construction of warehouse resumed. This structure is nearly ready to be roofed. 121 man days were charged to Guide and Contact Work and 52 man days to Clean-up. (Page 416).

Chaco Canyon - CCC Mobile Unit spent a total of 332 man days in stabilizing Pueblo Bonito and Kin Klizhin (page 432).

Chiricahua - Three hundred square yards of rock banks were sloped on the Bonita Canyon road. Echo parking area is 95% complete.

CONDENSED REPORTS (CONT.)

Light fixtures for the employees residence being made at the camp. Painting crew has been at work on the administration building. Utility area extension is 100% complete. Excavation completed on root cellar for Residence #2. Work continued throughout the month on the rock quarry (page 398).

Pipe Spring - Four CCC boys were used to haul gravel to the monument; pit toilets dug.

232 RD Construction

White Sands - Drainage Canal for headquarters area is 25% complete.

Plastering in the Utility Area is complete. Oil and Gas House ready for use. Wiring of all buildings completed and about 50% of the service fixtures installed. Residence #2 is nearly finished (page 419).

300 ACTIVITIES OF OTHER AGENCIES

320 Cooperating Government Agencies

Canyon de Chelly - The Soil Conservation Service has finished fencing in the new planting in Canyon de Chelly (page 424).

Gran Quivira - U. S. Weather Bureau has established a rain gauge at the monument (page 399).

Montezuma Castle - The General Land Office is marking the boundary of the monument (page 450).

Non-Government Agencies

Arches - The Civic Clubs of Grand and San Juan Counties, Utah, are constructing a large sign, 10 x 30 feet, which will be placed at the junction of U.S. Highways 50 and 160. The sign will show the location of all nearby parks, monuments, and scenic areas (page 393).

350 - Donations and Accessions

Tonto - Three pieces of broken prehistoric pottery were given to the monument by some workmen who uncovered them during some work at Roosevelt (page 425). The Gila Pueblo gave the monument library a copy of the report of that institution's excavations at Snaketown, a prehistoric village on the Gila River (page 425).

400 FLORA, FAUNA, AND NATURAL PHENOMENA

420 Museums

White Sands - A field representative of Remington Rand Inc. spent two days at White Sands assembling the museum cases (page 420).

Bandelier - The museum was closed during the month while new exhibits were being installed (page 439).

460 Birds

Casa Grande - Bird notes from Casa Grande (page 413).

El Morro - Bird notes (page 437).

Chaco Canyon - Bird notes (page 429).

Organ Pipe Cactus - Bird observations (page 415).

Pipe Spring - Bird banding report (page 446).

Tumacacori - Although no bird banding was carried on during May, many observations were made, particularly of nests (page 392).

Wupatki - Some bird observations (page 409).

CONDENSED REPORT (CONT.)

470 Animals

Wupatki - Fight between two bull snakes seen at Nalakihu ruin. Antelope observed south of the monument (page 409).

480 Miscellaneous

Montezuma Castle - Some nature notes (page 449).

Wupatki - 'Museum Notes', a publication of the Museum of Northern Arizona at Flagstaff contained an article on the solution cracks in Kaibab Limestone in the April issue. The cracks which appear within the boundaries of Wupatki National Monument were featured (page 408).

600 PROTECTION

620 Fire Protection

Bandelier - On April 30 a fire training school was held by Mr. Barrows, of Washington, D. C. (page 441). On May 22 a crew from the monument put out a small brush fire on the Ramon Vigil Grant (page 441).

630 Accidents

Casa Grande - Enrollee F. Garcia received cut on thumb which later became infected, although the cut received first aid treatment at the time of the injury. Garcia is now in St. Mary's Hospital, Tucson (page 416).

700 ARCHEOLOGY, PRE-HISTORY, AND HISTORY

Casa Grande - Pottery repair project has continued. Thirty sacks of sherds and fifteen pieces of modern pottery have been washed and twenty pieces of prehistoric pottery have been repaired (page 411).

Tumacacori - Custodian Caywood took several days annual leave during the month and visited some of the other missions of the Kino Chain (pages 391-392).

Wupatki - Several previously unreported sites were noted during the month (page 407).

900 MISCELLANEOUS

MAIL COUNT:

Incoming:

Official	2,769
Personal	1,202

Total incoming	3,971
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Outgoing:

Official only	2,982
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Total outgoing	2,982
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CONDENSED REPORT (CONT.)

TOTAL POSTAL MAIL

6,953

Telegrams:

Incoming

33

Outgoing

37

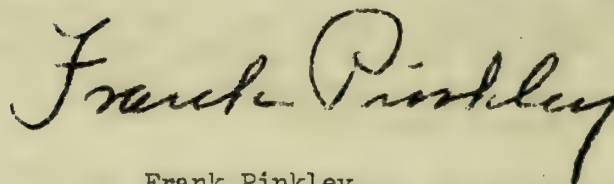
Total telegrams

70

GRAND TOTAL PIECES OF MAIL HANDLED

7,023

Cordially,

A large, elegant handwritten signature in cursive script that reads "Frank Pinkley". The signature is written in dark ink and is positioned above the typed name and title.

Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

WALNUT CANYON

By Paul Beaubien, park ranger,
Flagstaff, Arizona.

Visitors this month, 1,153; total since October 1, 4,270.

One hundred forty five parties were contacted in the museum, fifty-nine at the Observation Point, and thirty-three at both places. Visitors not contacted, 482.

Park Service visitors included A. T. Dicknell, Dorr G. Yeager, L. C. Cook, J. S. Barrows, W. C. Hilgedish, A. R. Tompson, A. E. Kuehl, J. H. Tovrea, Mrs. R. E. Folk, D. S. King, C. R. Steen, H. B. Hommon, H. A. Montgomery, and D. J. Jones. I spent most of a day with Jack Haile and H. E. Rothrock at Sunset Crater and Wupatki. Another day was spent with two National Forest Service rangers locating section corners of our proposed addition. Milton Wetherill and his mother went around both the old and the new trails, last Sunday.

The month was spent in taking care of the usual visitors, and guiding the Park Service visitors enumerated above. That statement just about says everything I have to say. The buildings at the CCC camp are going up rapidly and it won't be long now. With the boys almost here, there is some last minute effort necessary to help get the projects under way, such as locating the best building sand, the best sandstone, the best limestone, the best trees for beams, uprights, shakes, etc.

During the month a museum specimen case, a filing cabinet, and a drawing table were received from the Western Museum Laboratories. Also, the ice box was lighted. It functions, but sometimes beyond my control.

A party of 24 high school students just arrived. They're eating now, but will be in the house in a few minutes. They bring today's total of visitors over the 100 mark - and that is a poor way to run a monument when one is trying to write a monthly report.

*****SWM*****

We agree with Paul that the proper way to run a monument is to cut the report short and take care of the visitors. Also, it is the first time that alibi has ever been offered and we are in favor of letting anybody past who can furnish a brand new alibi for writing a short report. We get so tired of the old ones we used to send in twenty-five years ago still being in circulation and turned in on us every once in a while by this younger generation.

The thing which really puzzles us is, if a fellow can't think up more than one page of single spaced stuff to talk about over a whole month of operation, why should he get as mad as a bear with a sore ear if we can't get a man from headquarters in to see him at least every sixty days to talk over his accumulation of important matters which he claims he has? This is not a shot at you directly, Paul; it is just some Underwoodian rambling in which I am thinking of a field man in general, such as I have been myself for lo! these many years.

*****SWM*****

TUMACACORI

By Louis R. Caywood, custodian,
Box 2225, Tucson, Arizona.

Visitor count for this month, 1,018; total since October 1, '11, 284.

The visitor registration for the past month was lower than for the same month of last year. I have talked with the Secretary of the Nogales Chamber of Commerce and also with a number of Nogales business men in both Arizona and Sonora and all tell me that visitor business this year is below normal. The condition of unrest now existing in Mexico has something to do with the lower visitor travel because there have been more visitors than usual asking whether or not it is safe to go into Mexico. However, more people are coming just to see Tumacacori and return to Tucson without even going to Nogales, Arizona.

Weather for most of the month has been cool and fair with the exception of some windy days. The last few days have been noticeably hot, meaning that summer is practically here.

Park Service visitors for the month included: Dorr G. Yeager, assistant chief, Museum Division, Berkeley, California, accompanied by Mrs. Yeager, on March 4 and 5. Mr. Yeager had several questions in regard to the museum exhibits and the museum building. The museum exhibit plan was gone over thoroughly to visualize how the museum would look when the completed exhibits are installed.

Mr. Wirt, regional forester, and Mr. Yeager, assistant forester, Santa Fe, inspected the monument May 17. They noted how badly the tent caterpillars had damaged the trees on the east side of the monument.

D. W. Egermayer, newly appointed park ranger at Casa Grande and Mrs. Egermayer were monument visitors on May 17.

May 18 brought Dr. Herbert E. Bolton, Professor of History and Director of the Bancroft Library, University of California, Berkeley; Russell C. Ewing, of the History Department, University of Arizona, formerly Historian in the Region IV office of the National Park Service; and Mr. Hogan, Historian, Region III, Santa Fe, New Mexico.

TUMACACORI (CONT.)

Other noteworthy visitors included: W. L. Rigney, Arizona State Historian, Phoenix, on May 14; Messrs. Davis, Willis, and Voris, of the Arizona Federal Art Project, Phoenix, who came to seek information in regard to the proposed mural decorations in the new Museum. The Custodian was absent from the monument at the time of their visit, May 18, and they were referred to the Superintendent, at Coolidge.

May 22, 16 Indians from San Xavier, were interested visitors to Tumacacori. Mr. Leonardo Rios, one of the party, told how his ancestors used to live at this mission, but the Apache raids got so bad that they left for San Xavier, the women carrying the remaining small movable objects, including the statues of the saints, from the church in packs on their backs.

On May 11, the Custodian gave a lantern slide talk on National Parks and National Park policies before the Nogales Federal Business Association. Eighteen members attended. The association is comprised of the heads and subheads of each governmental agency in Santa Cruz county. Also doctors connected with government work are members. The custodian belongs as the representative of the Department of the Interior. Other departments represented are the Department of Agriculture (Plant Quarantine and Inspections and the Forest Service) Public Health Service, Treasury Department (Customs), Department of Labor (Immigration), the American Consul residing in Nogales, Sonora, and the U. S. Commissioner. The meetings are held monthly except in the summer. May 11 was the last meeting until September. The talk, 40 minutes in length, covered National Park history and policies with slides of the National Parks and Monuments. As an added feature, a number of Sonora missions slides were shown.

The custodian took five and one-half days annual leave this month to visit some of the Sonora Missions and the Gulf of California. He went with Mr. Bachelier and Mr. Johnson, both of Nogales, who were primarily interested in fishing. However, before the trip ended, they were mission enthusiasts and many hours were spent at the various missions. Leaving Nogales, the party went to Santa Ana, thence west to Altar, Pitiquito, and Caborca where the first night was spent. The next day Caborca was thoroughly inspected and photographed. One of the old timers, a Papago, told the history as far back as he remembered and then what his parents had told him.

From Caborca to Puerto Lobos is some of the worst road ever seen. The trip was finally made and those interested in fishing were repaid for the bad road.

An enormous shell mound type of ruin was found at Puerto Lobos. It covers almost one square mile. Many interesting facts were deduced from the examination of this large ruin.

On the return trip the party passed through Altar again, then on to

TUMACACORI (CONT.)

Oquitoa, Atil, Santa Teresa, and Tubutama.

This is the first trip the custodian has taken to these missions and he feels that the knowledge gained was well worth the time and effort. Some other time he hopes to visit Cocospera, Remedios, and Dolores, the mother mission of Pimeria Alta, founded by Father Kino in 1687.

Work done on the monument during the month included the following projects: fifteen hundred adobes were made. This barrow pit was filled. Part of the cemetery wall has been built up level with adobe brick preparatory to laying a brick capping. This work will be continued next month.

A gasoline tank and pump have been installed at the southeast corner of the garage.

Gustave Brady terminated his employment at Tumacacori on May 17. "Gusty" did some fine work while here and we hated to lose him.

Since April 29, Ted Cronyn has been acting as per diem guide. Mr. Cronyn's papers have been forwarded to Washington for approval as Park Ranger at Tumacacori.

Bird banding has been at a standstill during the month. However, nests are being observed. The HCWP found a Road-runner's nest on the east side of the monument which is overflowing with three young. Other birds nesting on the grounds are; Baird-Bewick Wrens, House Finchs, Phainopeplas, Vermillion Flycatchers, Say Phoebes, and Doves. Pairs of Cardinals, Cassin and Arkansas Kingbirds, Western Tanagers, and Canyon Towhees are in evidence, but so far nests have not been located.

*****SWM*****

Work seems to have proceeded about as usual at Tumacacori during the month. We are very glad Louis took the chance to visit the chain of missions to the south for he ought to be able to tell his visitors about the other missions of the chain.

Dr. Bolton stopped at headquarters on the way south and we had a couple of hours of pleasant gossip about things which happened two hundred years ago. He said he had a lot of new material bearing on Kino times and succeeding days and expected to publish again before very long.

During the month we talked some more about the planting scheme for the patio at Tumacacori but it came to little. The best we can do is to sign the Landscape plan which will give us a nice landscaping of the patio and let it go. My theory was that, just as we would not decorate

TUMACACORI (CONT.)

the interior of a museum with a collection of prehistoric pottery, but would put the pottery in the order in which we wished to talk about it, so we would not primarily decorate this patio with the plants the Indians and Padres used, but would find the best order in which to use them in our garden talk and then plant them in that order. Tov. and I fell out almost at once because I wanted to plant some of that little Papago corn, and some squash and beans in the patio. No patio would have had those things in it, ergo, we could not plant them here. My theory being that the patio is simply an extension of the museum, makes the corn, squash, and beans come in quite naturally, even to the detriment of the landscaping and the loud cries of the landscapers.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

Visitor count for this month, 100; total since October 1, 696.

GENERAL

A sign to be erected at the intersection of U. S. Highways 50 and 160, is being made in Moab. It is of wood construction and will be 10 by 30 feet in size. The sign is laid out in three panels, the center being a pictorial map of southern Utah with a small portion of western Colorado, northwestern New Mexico, and northern Arizona. All points of interest, including national parks, national monuments, other scenic attractions, and towns are shown. One or more subjects from each park, monument, or area was selected and reproduced in oils in their correct location on the map. All parks and monuments are designated and the name of each subject is given, as are the names of rivers and numbers of highways. Side roads leading from the main highways to the various points of interest are also shown. In the upper left hand corner of the sign appears a large picture of the Goose necks of the San Juan River, while in the upper right hand corner is a picture of Landscape Arch in Arches National Monument. Beneath these paintings are descriptive panels giving something of the history and geography of the country. The art work is by Buck Lee, of Bluff, Utah. The project was financed by the civic clubs of Grand and San Juan counties.

Construction has been started on a reservoir at Willow Springs which is located on the temporary road into the monument at a point about half way between the intersection of Highway 160 and the windows. Before the Division of Grazing could begin work on this project, it was necessary for them to repair the road which is now in much better condition than it has ever been before.

SPECIAL VISITORS

ARCHES (CONT.)

Sunday, May 8, a party consisting of Morris Townsend of Denver, and William Wood, secretary of the Grand Junction, Colorado, Chamber of Commerce; Frank Hoisington; Al Look, a representative of the "Daily Sentinel" of Grand Junction, and Al Look, Jr., visited the monument. I met them at the Windows while conducting a party consisting of Theodore V. Vollkommer and S. D. Moodie, of Pittsburgh, Pennsylvania, through the monument. Mr. Vollkommer and Mr. Moodie also made trips to the Devil's Garden, Delicate Arch, Fisher Canyon, and the Big Flat.

Sunday, May 15, Zeke Johnson, custodian of Natural Bridges National Monument arrived with a party made up of fifteen students of geology from the University of Utah, headed by Dr. Frederick J. Pack, head of the geological department of the University, and Miss Phyllis Wilken, instructor. Dr. Pack was accompanied by Mrs. Pack. The party arrived at three o'clock in the afternoon and made a very short but enjoyable visit to a part of the Windows section. The party was on a tour of southern Utah.

NATIONAL PARK SERVICE OFFICIALS

Jesse Musbaum, superintendent of Mesa Verde National Park; Paul Franke, assistant superintendent of Mesa Verde; and J. H. Diehl, Park Service Engineer, were visitors during the first part of May.

Wednesday, May 18th, Dr. H. C. Bryant, Assistant Director, National Park Service; Charles N. Gould, regional geologist; and W. B. McDougal, regional wildlife technician, arrived at the monument road where they were met by R. J. Fletcher, C. S. Thompson, Dr. J. W. Williams, Earl J. Freeman, and Myself. A trip was made through the Windows section.

Thursday, May 19, in the forenoon, the above named park officials and I visited the Court House Towers. In the afternoon a trip was made to the big flat to view the Colorado River Canyon. The following morning a trip was made through Fisher Canyon after which the party departed for Natural Bridges National Monument.

MISCELLANEOUS

In view of the fact that an elaborate sign is to be placed at Crescent Junction, telling the motor public of the many things to be seen along Highway 160 and connecting roads, and due to the fact that the Arches are the first scenic features to be seen on this circle trip, I feel that a better sign should be installed at the entrance road. We should also have a register in the monument to make it possible to get some check on the number of visitors. Of course, this problem will be solved when a temporary ranger is placed in the monument, but until then it is just about impossible to get any record of the number of visitors.

ARCHES (CONT.)

We have chalked up one more new arch this month. It is in the Devil's Garden, less than a mile from the famous Landscape Arch. Old Dame Nature surely did a good job of hiding this one. It is through a thin web of rock between two of the innumerable crevasses which make up that portion of the garden. There is only one possible entrance which leads to the arch which we call Hidden Arch. The approximate dimensions are: height, 20 feet; length, 35 feet. It is a beautiful symmetrical arch. A photograph was made of it and will be forwarded to headquarters upon completion. It seems the supply of new arches is almost inexhaustible. To date I have seen 47 arches within the proposed extended boundary of the monument.

Enclosed are two photographs made in the group of formations located just north and west of Willow Flats. This area is not within the proposed boundary but is of interest and very accessible to the tourist.

Also enclosed are two newspapers which are of interest. The Arches got their share of publicity in this year's edition of the scenic section of the Tribune.

*****SWM*****

The photographs and papers came through all right and it looks like Arches is getting a lot of good publicity. For this, of course, we must thank Dr. Williams, Bishop Taylor, Harry, and our many other good friends at Moab.

It is funny, isn't it, that Harry mentions his forty-seventh arch in such a commonplace way. Imagine, if you can, the publicity which would burgeon forth if the Chamber of Commerce at Colorado Springs should go out some morning and find a third rate arch in the Garden of the Gods; what would they do with a forty-seventh arch?

*****SWM*****

CHIRICAHUA

By Frank L. Fish, custodian,
Douglas, Arizona.

Visitors this month, 941; total since October 1, 5,232.

Business conditions in Cochise County are below standard compared with this time last year. The mines of the area are doing some development work for future rise in copper prices, but employment is being given only to older employees, and then mainly to married ones.

Stockmen report the ranges in need of rain, but cattle are in good condition, although another dry season in this area like last summer will necessitate general selling of livestock. However, those stockmen

CHIRICAHUA (CONT.)

who had yearlings, held over from last year, report favorable prices. Quite a number of cattle have been imported from Mexico through Douglas for middlewestern and California feeders this spring.

Wind that was general through March and April continued into early May, making many days disagreeable at Massai Point, our best contact point. In general, conditions are dry throughout the monument and the Coronado National Forest. Showers, sprinkles, and rain occurred on April 26, 29, 30, May 18, and a local shower in upper Bonita Canyon on May 21.

Lookouts and patrolmen in the monument and Coronado National Forest were placed at their stations April 27. Enrollees Riley and Shaw are doing the duties on Sugar Loaf and although they are inexperienced it is believed they will be "Old Hands" before long, especially after their recent contact with Bill Wirt and Ward Yeager. It has been our policy to caution our lookout men over the telephone on bad days of low humidity, heavy travel periods, and during electrical storms, to be especially wide awake.

Monument roads are in good condition with added improvements each month in appearance and maintenance. Approach roads are in fair shape for this dry period. Surfacing of the Elfrida-McNeal stretch of State Highway 81 has necessitated a detour that might have some effect on travel from Douglas. The Forest Service is maintaining the Pinery Road over the mountain at the present time, and it should be in good condition before long.

Visitors show a drop of 72 compared with May of last year. A detour on the Douglas Highway, along with cold and windy days might account for this slight drop. However, this area should show an increase to be normal.

	<u>Cars</u>	<u>Visitors</u>	<u>Number of States</u>	<u>Out of State Visitors</u>
1938	228	941	21 - India & Mexico.	167
1937	232	1013	21 - France & Mexico.	
1936	102	462	17 - Mexico.	

EDUCATIONAL STATISTICS

<u>Number of Contacts</u>	<u>Attendance</u>	<u>Minutes Stay</u>	<u>Average Att.</u>	<u>Average Stay</u>
101	599	4,875	5.9	48.2

Total stay of all visitors - 54,640 minutes.

NATIONAL PARK SERVICE OFFICIALS

Charlie Steen and Dorr Yeager, with their wives, on museum and educational plans. Bill Wirt and Ward Yeager on forestry and fire atlas business.

CHIRICAHUA (CONT.)

OTHER GOVERNMENT AGENCIES

James Gilluly, R. S. Cannon, Jr., J. Bridge, and W. H. Haas, of the Geological Survey, Washington, D. C.

Mr. and Mrs. Hill, State Educational Office. Mr. Hill showed an educational film on geology, erosion, and plant seeds at the CCC camp. M. S. Misenheimer, State Highway Division.

OTHER VISITORS

The journalist class of the Thatcher High School, 14 in number, spent a day of hiking and picnicking.

Twenty members of CCC Camp F-12-A took in all the trail system on the 21st of the month.

Mr. Cheney and Mr. Tuttle, formerly with the A.T.&S.F. Railroad around Grand Canyon.

John Hands, from Paradise, one of the few old timers left in this region. Mr. Hands states the Gila Pueblo is finding some interesting material in the San Simon Valley near his place.

PERSONNEL

Enrollee Parker replaced Minton who transferred to a Texas camp. CCC guide Stone was on leave from May 6 to May 15, inclusive; during his absence, Enrollee Nixon helped out.

DEATHS

Former LEM George Schweinlein passed away at his home in Bisbee the evening of May 21, of pneumonia. George was advanced in years, but was quite active up to his last few days and was well liked by all who knew him.

EQUIPMENT

A gas range was received by transfer from the Ace Van Storage Company, of Los Angeles, California, on the 4th.

Six museum storage cases were received from Berkeley, California during the month.

*****SWM*****

We looked over at Chiricahua on our way to and from the White Sands but just didn't have the time to go over and visit the Fishes.

CHIRICAHUA (CONT.)

We did find that the Standard Oil man at Bowie was very much alive on the matter of making a monument at old Fort Bowie and running the present ten or twelve miles of graded road through that monument and on to Chiricahua, and thence to Douglas. Douglas will also be responsive to this idea, we suppose, because when the new short line is built through Stein's Pass, parallelling the Southern Pacific from Lordsburg to Benson, Douglas will be out on a limb so far as tourist traffic is concerned unless she can give the tourist some interesting reason for coming away from the straight line of travel. With Fort Bowie, Chiricahua, and Tombstone, and a chance for the visitor to look across the border, a great deal of tourist traffic can be diverted south at Bowie to return to the main road again at Tucson.--F. P.

*****SWM*****

CHIRICAHUA CCC

By William Stevenson, project superintendent, Douglas, Arizona.

Two hundred square yards of rock banks were sloped on Bonita Highway three miles north of the Sugar Loaf truck trail intersection. Materials were used to widen fill slopes. One hundred square yards of banks were sloped on Bonita Highway near the Administration Building and materials were utilized in the obliteration of the borrow pit opposite the camp ground.

Echo Parking Area is 95% complete. The sub grade and parking stalls have been completed and gravel is now being hauled for finishing.

Light fixtures for the Employee's Residence are now being made in camp. The installation of these fixtures will mark the completion of this building.

A crew has been busy on the Administration Building removing all paint from the original building and painting the interior of the exhibit and storage rooms.

The Utility Area extension is 100% complete. The stone in connection with this project is complete except for gates, which are now being fabricated in camp.

Excavation has been completed on the Root Cellar for Residence Number 2 and stone walls are completed to a height of three feet.

Work continued throughout the month on the rock quarry.

*****SWM*****

GRAN QUIVIRA

By George Boundey, custodian,
Gran Quivira, New Mexico.

Visitors this month, 279; total since October 1, 1,614.

We have had five spring-like days during the month, the rest of the time has been cold with high winds and much dust. About a quarter of an inch of ice formed on the water pans last night.

On May 22, in company with the principal of the school, we visited a number of the many ruins along the west rim of Chupadera Mesa in the Cibola National Forest. Many of the ancient fields can be traced, as well as charcos and tanks for the storage of water. That country is very dry; there is practically no feed and the cattle are in very poor shape.

On May 7, a party consisting of Dr. H. C. Bryant, Washington, D. C.; Herbert E. Bolton, University of California, Berkeley; R. F. Lee, Washington, D. C.; Mr. and Mrs. E. H. Abrahams, Savanna, Georgia; W. R. Hogan, Santa Fe; G. P. Hammond, Albuquerque; Mrs. R. E. Folk, Nashville, Tennessee; Mrs. H. Maier, Santa Fe; and Margaret B. Clark, San Francisco, California, visited the monument.

On the 23rd Ward W. Yeager and W. H. Wirt, of the Santa Fe office, visited the monument.

The U. S. Weather Bureau has established a station on the monument for determining snow fall, precipitation, etc. I think I will ask them to put in the balance of the equipment to make this a regular weather observation station.

Dale King and wife, from headquarters, visited the monument on the 22nd. It has been quite a while since we have seen anybody from headquarters and we enjoyed their visit very much.

Owing to lack of moisture, there are very few wildflowers this spring. We are hoping July rains will bring us a goodly supply of fall varieties.

We are having many kinds of birds coming in to water, but very few have started housekeeping. The temperature still drops below freezing nearly every night.

*****SWM*****

Gran Quivira is down considerably this month as against last year, due, probably, as Mr. Boundey suggests, to unseasonable weather. Last year they had 531; the year before, 575; and the year before that, 396.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 1,707; total since October 1, 9,837.

GENERAL

Unsettled weather has effected our travel to some extent. However, May has been a very busy and satisfactory month. The roads have been in fair shape all month with little delay to tourist travel because of storms and snow slides in the higher elevations in Colorado. From all indications, the San Juan Basin will have one of the largest fruit crops in history. This valley seems to be the garden spot of New Mexico this year, and it is believed 1938 will be the banner travel year for this monument.

WEATHER STATISTICS

Maximum temperature-	- - - - -	-86 (on 14th.)
Minimum temperature-	- - - - -	-23 (on 7th.)
Clear days	- - - - -	-11
Cloudy days-	- - - - -	-10
Partly cloudy days	- - - - -	-10
Precipitation-	- - - - -	-.19

NEW EQUIPMENT

Three museum storage cases and one herbarium case were received by freight from the Western Museum Laboratories.

PERSONNEL

James W. Brewer, Jr., entered on duty May 5 as park ranger. Jimmie has had several years experience in the Southwestern Monuments as temporary ranger. He has had good training and it is greatly appreciated when you get a permanent man that has had the experience in the Service and knows how to proceed with the duties of a Ranger. In addition to his general duties, which keep him on the go most of the time, he has built us a new register stand. The stand is made of aspen and blends with the ceiling construction in the lobby.

SHIPROCK BRIDGE DEDICATION

The custodian took an official part in the dedication of the new steel bridge at Shiprock April 23. The dedication was well attended and proved to be an interesting affair. It was sponsored by the Farmington Lions Club. Principal speakers at the dedication: Bee-Lee-Lli-Zin-Begay, Navajo medicine man at Shiprock, told "How the Navajo's Crossed the San Juan River Long Ago". Interpretation of speech by a returned Navajo student. Dedicatory address by Hon. Clyde Tingley, Governor of the state of New Mexico. Present at the dedication were delegations from Arizona,

AZTEC RUINS (CONT.)

Colorado, Utah, and from distant points in New Mexico. Paul R. Franke, assistant superintendent, Mesa Verde National Park, made a talk on Mesa Verde. The writer talked on Aztec Ruins and Chaco Canyon National Monuments. There were 3,500 people present at the dedication.

BIRD NOTES

Our little feathered friends are busy home-making and brood-tending the length and breadth of the monument. A cock pheasant crows at the crack of dawn to awaken his hen and ten youngsters and, incidently, the custodian. A meadow-lark is nesting between the custodian's residence and the Administration Building and has a prospective brood of six. House Finches and English Sparrows are nesting in the museum porch timbers. Hardly a field trip can be accomplished without the visitors coming in contact with Quail, Red-wing, and Brewer Blackbirds. Magpies and Robins are all frequent visitors.

NEWSWORTHY VISITORS

Hon. Clyde Tingley, Governor, state of New Mexico, paid us a visit and inspected the entrance road April 23.

~~Fort Wingate Vocational High School May 5. Number in party, 27.~~
~~Oxford, Colorado, School, May 6. Number in party, 36.~~ Boy Scouts of Troop 46, Aztec, held their Court of Honor in the Great Kiva May 8. Attendance, 76 people.

Miss Bertha Dutton, archeologist, School of American Research, and party, from Santa Fe, May 8. Number in party, 5.

Dr. Mera, Laboratory of Anthropology, and Clay Lockett, U. S. Indian Service, Santa Fe, May 10.

~~Crowpoint Indian School, May 12. Number in party, 15.~~

District meeting of the American Legion and Legion Auxiliary met in the Great Kiva, May 13. Party arrived 5:40 p. m. and departed 10:40 p. m. Attendance, 104 persons.

The Mormons from Red Mesa, Fruitland, and Kirtland had a holiday outing and visited the monument with 51 school boys May 14.

Miss Dudley Peace, field representative, N. Y. A., and party, were here on business May 17.

NATIONAL PARK SERVICE OFFICIALS

Chief Clerk Walt and family, and Mr. and Mrs. Coin, Mesa Verde National Park, visited the monument April 24.

AZTEC RUINS (CONT.)

Custodian McKinney, Chaco Canyon National Monument, was here April 28.

M. J. McColm, L. F. Cook, A. Robert Thompson, Mr. and Mrs. J. S. Barrows, all from the Regional Office at Santa Fe and Washington, D. C., visited this monument in a group May 1 and caught the custodian taking four hours off. I am very sorry to have missed this party and had I known that they were coming, I surely would have met them.

Dr. Herbert E. Bolton, Berkeley, California, of the Park Service Advisory Board, and William R. Hogan, Historian, Region Three, were monument visitors May 15.

John H. Diehl, district engineer, Region Three, May 17.

Chuck Richey, district landscape architect, Region Three, May 20.

MONUMENT INSPECTIONS

On May 20 Ranger Brewer was detailed to inspect Hovenweep and Yucca House National Monuments because he served as Roving Ranger last year and is quite familiar with those two monuments. Attached to this report you will find Ranger Brewer's report of his findings.

TRAVEL

1,707 people entered the monument in 569 cars and buses, coming from 34 states, the District of Columbia, Austria, Denmark, and India. Total travel since October 1, 9,272. Travel for the corresponding period of last year, 5,758, an increase of 3,514 people.

GUIDE SERVICE

Total visitors- - - - -	1,707
Visitors guided in Ruins- - - - -	1,454
Field trips - - - - -	211
Guide minutes in Ruins- - - - -	7,791
Visitors guided in museum - - - - -	1,482
Museum trips- - - - -	202
Guide minutes in museum - - - - -	5,375
Miscellaneous guide time, minutes - - - - -	171
Total guide time- - - - -	13,166

HOVENWEEP-YUCCA HOUSE INSPECTION

By James W. Brewer, Jr., park ranger.

On the morning of the 20th the writer left Aztec for a Hovenweep-Yucca House inspection via Durango and Ackmen, returning by way of McElmo Canyon

AZTEC (CONT.)

and Shiprock, a tri-state tour.

HACKBERRY GROUP: Signs of sheep everywhere at this group. A new tank and corral have been constructed about a mile and a half north of the ruins. The tank three miles above the ruin (reported last year) is at present a dust bowl.

Monument boundary and Antiquities Act signs are posted at this group.

HORSESHOE HOUSE GROUP: Seems to be unchanged but is badly overgrazed.

HOLLY CANYON GROUP: This was probably one of the last sheep camps on the monument this season. Fresh sheep tracks cover the area and a recently abandoned camp decorates the monument with tin cans and two sheep skins hung on trees. I was unable to locate the present camp because of limited time. A good clean-up is in order here.

The dam at Cajon Lake has been heightened and is now impounding a much larger lake. Cajon Mesa is becoming more and more attractive to sheep interests and also to the Reclamation Service.

RUIN CANYON GROUP: In fair shape. Grazed but not barren.

CAJON GROUP was not included in the itinerary.

No newly fallen walls nor recent evidences of pot hunting were observed at any of the ruins. (All of the groups are posted).

The Ackmen DG CCC spike camp left their mess hall and tent frames standing over the winter, indicating that they will probably resume work in this area soon. This Government agency has been urged by the local sheep interests to develop the monument springs for stock. One such unauthorized project was halted last summer.

We were pleased to learn at the John Ismays that copies of her early Hovenweep photos had been sent her by your office. Mrs. Ismay is pleased with the copies and we are sure the Service is glad to have negatives taken from her pictures.

In closing, Boss, we want you to know that we are happy to be back in the Service, and that while Cal and I hope to give more visitors better service at Aztec, we wish you could do something for Hovenweep.

*****SWM*****

AZTEC (CONT.)

It looks good to see Jimmie Brewer's name in the reports again and this time as a permanent man entering his probational year.

We might pass the word to Carroll that Dr. Bolton was very much impressed with the restoration job on the Big Kiva at Aztec and also spoke very nicely of his treatment at that monument.

We agree with Jimmie's appeal for more protection at Hovenweep and are pressing forward in the estimates as fast as we can toward a full-time man up there.

We are glad to note that during the month the Branch of Plans and Designs and the Engineers seem to have agreed on the matter of protecting the bad roofs and walls at Aztec and we may soon be able to proceed with the repairs to ruins.--F. P.

*****SWM*****

NAVAJO

By William F. V. Leicht, park ranger,
Tonalea, Arizona.

Visitors this month, 22; total since October 1, 139.

GENERAL

To the personnel at headquarters, the men in the field, and all the readers of our monthly reports -- greetings from Navajo National Monument.

It's sheep-shearing time in Navajo Land and there is much activity at the trading posts. I watched with much interest the tamping of wool into sacks. The long sack is hung in a stout frame and into it a quantity of wool is thrown. Into the sack jumps an Indian, exercising his legs like a track man warming up for a race. In this manner the sack is filled with closely compressed wool and, in one instance which a certain trader discovered, the additional weight of a whole dead sheep.

The weather at Navajo during the past month may be summarized in the following ingredients: one week of warm weather, three weeks of cool weather, and three included weeks of very windy weather, with the concomitant (using a polite adjective) sandstorms. Precipitation has been light -- a few sprinkles of rain, and on May the third a two-inch fall of snow.

So fierce are the sandstorms at times in this wind-swept land that on May 2 a young Navajo woman, tending a flock of sheep, became lost during one in the desolate region between Tonalea and White Horse Mesa. It was feared that in her blind wandering she had fallen into a canyon. Search was made for her that day and on the next the searching party was

NAVAJO (CONT.)

augmented by Indian police from Tuba City. She was found huddled in an abandoned hogan, where she had taken refuge from the violence of the storm.

ADMINISTRATION

Hope springs eternal and the present ranger at Navajo has been building castles in the air, or more accurately speaking, planning for one on the rim of Betata'kin Canyon. Accordingly, he has made a survey for a favorable site on which to build the new headquarters, stating in a report the several advantages for his choice of that location.

Another report was submitted on the condition of the ruins at Inscription House. A plan is now being devised to protect from the ravages of weather the date that gives Inscription House its name.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

A monument has been erected at Tonalea, one of the gateways to Navajo National Monument, by the Utah Pioneer Trails and Landmarks Association. It honors a seventeen-year-old Mormon boy who was shot by Indians near White Horse Mesa, where he had gone in search of his strayed pony. The Indians seized the boy's gun, shooting the lad in the back.

The monument is constructed from blocks of pinkish sandstone and stands on an eminence opposite the trading post. It bears a bronze tablet with the following inscription: "No. 77. Erected May 8, 1938. In Honor Of George A. Smith, Jr., A Member Of Jacob Hamblin's Party Of Nine Mormon Missionaries And Explorers, Who Was Wounded With His Own Revolver By Indians, Nov. 2, 1860, Presumably To Avenge The Killing Of Indians By White Men Shortly Before. He Died While Being Carried On Horseback To Reach Medical Aid. His Companions, To Save Their Own Lives, Were Forced To Leave His Body Wrapped In A Blanket Unburied."

Members of the Church of Jesus Christ Latter Day Saints from towns in northern Arizona and southern Utah conducted the ceremonies. A pageant of the Jacob Hamblin expedition was held one night, the actors performing by the light of campfires. On the following morning the monument was dedicated.

FLORA, FAUNA, AND NATURAL PHENOMENA

The smoky blur in Betata'kin Canyon that was the naked aspens, black birches, and Gambel Oaks has now changed to a puff of green. Leaves came on the trees in the order named above.

Perhaps it is significant that the first wildflowers to appear were of purple, lavender, and blue colors. As the sun's rays became less slanting with the advancing season, yellow, orange, and red flowers

NAVAJO (CONT.)

followed, and in that order of appearance. This "phenomenon" may be tied in with observations made in the equatorial tropics, my residence for a number of years. There I observed that the wildflowers of the jungle are predominantly a flaming red or shades of yellow and orange. Blue flowers are a rarity. Incidentally, in those torrid regions, where infra-red rays are weak and ultra-violet rays strong, red is a "soothing" color. On the other hand, is it not true that in the Arctic Zone, where infra-red light is prominent, blue is a conspicuous color? I'll leave those ruminations with the botanists of our organization -- and our philosophers.

USE OF PARK FACILITIES BY THE PUBLIC

Twenty-two visitors came to Betata'kin during the past month; none to Keet Seel or Inscription House. This number is a decrease of twelve from last month's report, which may be explained by the occurrence of an Easter vacation during the previous month.

MISCELLANEOUS

Navajos of the immediate region, noticing me in full uniform, asked a trader the meaning of it all. The trader, exaggerating slightly, told them I was from "big Washington" and that the badge meant plenty of authority. Since then I have acquired the title, "Na-asaz-i Binant-ai", which means, "Chief of the Cliff Dwellers".

*****SWM*****

Bill seems to be settling into his new job but seems to be turning up a new difficulty now and then. The latest is some nimble-fingered and nimble-footed Navajoes who raid his food supply while he is away from his tent house. With a couple of detached sections, one eight miles one way and the other fifteen miles in the other direction, Bill just has to get a little ways from the home base now and then.--F. P.

*****SWM*****

WUPATKI

By David J. Jones, park ranger,
Tuba Star Route, Flagstaff, Ariz.

Visitors this month, 189; total since October 1, 796.

A total of 184 visitors have registered at this monument for the past month; it represents only a slight increase for the same month in the past three years. Most of the visitors since the fifth of May have visited only the Citadel. Probably the windy and rather disagreeable weather plus the condition of the road have kept a good many from coming on over to Wupatki. Personally, I am glad to have an opportunity to get settled before the summer travel starts.

WUPATKI (CONT.)

GENERAL

After having been at Casa Grande for the winter months, I feel as though I know a bit more about the backstage work of the Southwestern Monuments. Now when they seem to ignore my letters, I will know the reason why. It is hard for us fellows in the field to realize how much work they take off our hands. Not only do they have to worry about us, but the Washington office and the general public as well. It seems quite a task to write a report once a month and include some facts. I don't know what I would do if I had to make ~~six~~ a month to the Washington office to individuals who are not intimately acquainted with my problems. It was also my good fortune to sit in on a discussion of the administration of the antitrust appropriation. This worries them as much as it does us. And when I do not get money to stabilize one of the walls at Wupatki that is supported by only two stones, it is not that I do not need it, but that some other fellow has a wall supported by only one stone or none at all. While I shall probably continue to grumble about being abused at Headquarters, I shall never consider it seriously.

Clyde Peshlakai was relieved of his duties as caretaker on the fourth of May. Everything that Clyde could take care of was in good condition. As Paul Beaubien says, Wupatki really looks clean when Clyde has charge of it; each room was carefully swept. Just before I left in December, Clyde saw me repainting some of the signs, and took over the brush while I was gone. Some of the signs have a Navajo version of some of the letters of the alphabet, but on the whole they are pretty good. He went after some of the signs along the road which were intended to blend with the surrounding country. Now at least you can read them. As a matter of fact, I think that we ought to use wooden signs instead of the enamelled ones. They would be cheaper, and could be repainted every once in a while.

On the 10th of the month I sent in a plan for stabilization of Wupatki. The most pressing matter is the east wall of Room 41, which, for the last few hundred years, has been supported by four prehistoric beams. These beams have cracked, and if attention is not given to it immediately, there will be no wall.

On the afternoon of May 17, Al Huehl and Ranger Beaubien came out. We looked over the proposed road entrance on the north side of Doney Crater. If this route is approved, we shall have a wonderful road into the monument from a scenic standpoint.

While on this survey we noticed several sites which had not been recorded by the Museum of Northern Arizona. The next day Walt Taylor, Flagstaff Teachers College, came out and we looked over these sites more carefully, and collected plants in that area. While we are doing the development work in the next few years, we ought to survey all of the sites on the monument and spot them on a map.

WUPATKI (CONT.)

On May 9 I took a piece of cotton cloth from the north wall of Room 11. It was pretty well covered with dirt and had apparently been overlooked in the excavations.

The monuments in this area ought to get a good deal of publicity from the Flagstaff Chamber of Commerce. They have employed several young ladies in Flagstaff to act as "hostesses" and acquaint the visitors with the scenic areas around Flagstaff.

On May 8 I inspected the trapper's cabin near the Arrowhead Tank, and found that he had left without cleaning up. The cabin is on monument property as a result of the recent boundary extension. It is an eyesore to the visitors and will have to be cleaned up before the travel for the summer begins.

I noticed a rather peculiar cinder formation about a half mile from Wupatki the other day. It looks like a very thin lava flow composed chiefly of cinder which had covered the talus on this hill. One can pick up any number of pieces of Moencopi Sandstone with this thin coating of cinder on it. The most logical explanation so far is that the cinder has been cemented to the talus by lime from the Moencopi formation just above it. H. E. Rothrock of the Washington office expressed a good deal of interest in it and wants to hear of the final outcome.

The April issue of the Museum Notes contains a very interesting article on the solution cracks ("earth cracks") in this area, explaining their formation and what exploration has been done in them.

USE OF MONUMENT FACILITIES BY THE PUBLIC

1938--184; 1937--no data; 1936--166; 1935--125.

At the Citadel 124 visitors registered, as compared to 82 at Wupatki. Since 22 of these names are on both registers, the travel for this month is 184, a total of 796 visitors since October 1. It probably does not represent much of an increase over the same period last year.

One visitor has been camping down at the Exhibit Hogan for the past two nights.

NEWSWORTHY VISITORS

National Park Service inspections have been made by the following individuals: Al Kuehl, Jack Haile, H. E. Rothrock, and Paul Beaubien.

In addition, we have enjoyed visits from Mrs. Ann S. Folk, of the Park Service Advisory Board; Walt Taylor and wife; and Milton Wetherill.

WUPATKI (CONT.)

IMPROVEMENTS AND NEW EQUIPMENT

New equipment for Wupatki includes an Electrolux refrigerator, a three burner gas stove, one herbarium case, and one steel letter file.

One and one half man days have been expended preparing a filled in room back of the kitchen for the refrigerator, and one man day cleaning and repairing the water tank.

NATURE NOTES

Since our arrival on the 14th, we have collected 25 flowering plants, and have been able to secure blooming dates for most of them.

In addition, we have identified the following birds: Ash-throated Fly Catcher, Dwarf Cowbird, Say Phoebe, House Finch, White-rumped Shrike, Poor-will, Western Mocking Bird, Rock Wren, Pinyon Jay, and the Chipping Sparrow. The loss of our "Birds of New Mexico", by Bailey, through transfer to ~~White Sands~~, has restricted our activities considerably. If Milton Wetherill had not taken the time to come out and help us identify the birds we would have been able to do very little.

On May 8 I saw a Golden Eagle near Heiser Spring, but as yet have not been able to find the nest. The one they occupied last year near the Citadel is empty this year.

At the Citadel on the afternoon of May 9 we saw a very interesting battle between two bull snakes. There are three of them living in the walls of Nalakihi. One of them came upon another while making a promenade around the ruin. The other one immediately came out of the crack and wrapped itself around the other. The battle lasted about five minutes. The tails were closely entwined and there were two or three coils between the tails and the heads. Most of the action occurred at the head end. Each seemed to try to throw a coil around the other's head. Several times one would throw the other off and they would start in again. Finally one of them became tired and made a dash for a hole in the wall, ending the fight. Looking around where the snake had been resting, we found another one within the wall, presumably a female. All during the fight both snakes were blowing (or hissing).

On the road to Leupp the other day we observed an antelope. Mr. E. C. Wright, who has been trapping here for the past few years, said that he saw very few of the antelope this year. In 1937, however, he said there were at least 2,000 head in this area. The heavy snow in the mountains drove them down. Otherwise, they would have been in the area to the north of Kingman and Ashfork. Wright states that he has seen as many as 500 in a band down here.

In closing, I would like to say that we enjoyed our visit to the

WUPATKI (CONT.)

Montezuma Castle very much. Now I shall have a better idea what to tell visitors when they inquire about the finest cliff dwelling in the Southwest. We are looking forward to a visit from the Jacksons in the near future.

*****SWM*****

Thanks for the flowers, Davey, we are glad you got to see backstage around headquarters this winter and know that the boys do keep busy. In their stride, without letting down on the other work, they put out four copies of the annual estimates for fiscal year 1940 last week. These estimates run between four and five hundred pages. Three of these copies went into the mail and will count as three of the 4,000 pieces of mail we will handle this month.

I hope Corky likes that view from her front door, especially at about sun-set when you can stand out on the roof and see the Hopi and Navajo Country bathed in red light. It is a great country if you don't have to ride across it in the saddle.--F. P.

*****SWM*****

CASA GRANDE

By A. T. Bicknell, Custodian,
Coolidge, Arizona.

Visitors this month, 2,433; total since October 1, 26,621.

WEATHER

Days clear- - - - -	19	Maximum temperature- - - - -	106
Days partly cloudy- - - - -	8	Minimum temperature- - - - -	28
Days cloudy - - - - -	3	Mean maximum temperature - -	92.1
Precipitation - - - - -	.00	Mean minimum temperature - -	48.9

Daily temperatures rose steadily until May 15, when the maximum for the month was reached. Since that time, the average daily temperature has dropped somewhat, to 92.1, the same as the average for the whole month, but 4.8 degrees warmer than for the same period last year. The direction of the prevailing wind has been from the west. No rain during the month, although both Tucson and Phoenix report heavy showers on May 17.

GENERAL

The total visitor travel to the monument this month was 2,433, a decrease of 256 persons in the number which visited the monument in May, 1937. As some 700, or approximately 25 per cent, of these were members of special groups and organizations holding picnics at the monument, it is readily seen that the regular tourist traffic has dropped off markedly in the past two months, possibly due to the heat, and to numerous dust

CASA GRANDE (CONT.)

storms during that time.

Travel by states is as follows: Arizona, 1,361 registrations, or 56 per cent of the total; California, 263, nearly 11 per cent of the total. The states of Texas, Illinois, Oklahoma, New York, Arkansas, Colorado, Ohio, and Michigan follow in the order named, all showing more than 20 registrations. Four foreign countries are also represented: Germany, France, Peru, and Mexico.

Ranger David Jones, our recent Benedict, finished his tour of duty at this monument on May 1, and returned to Wupatki for the summer season May 2, after some five months here at Casa Grande.

A new addition to the personnel of the Southwestern Monuments is made by the appointment of D. W. Egermayer as Park Ranger, stationed at Casa Grande. He, and the H.R.W.P. are very happy to settle down (?) after five years of being moved from place to place as a CCC foreman, most of that time being spent on the Coronado National Forest, south of Tucson.

Custodian Bicknell has been more or less a Custodian-at-large this past month. Starting April 27, he made a trip to Gallup, to take Ford U.S.D.I. #1813 and an Electrolux refrigerator to Zeke Johnson. The first night was spent with Paul Beaubien, who took his day off to accompany Bicknell to Gallup. The second night was also spent at Walnut Canyon, and he is indebted to Paul for a very fine trip to Sunset Crater, Wupatki, and the Museum of Northern Arizona. Returned to Headquarters the 29th, making a very full day. May 6, Custodian Bicknell and General Mechanic Stonehocker began moving CCC equipment from SP-11-A to Headquarters. Returning to Coolidge at 4:00 p. m., they left immediately for Montezuma Castle to deliver a truck, returning next day by way of Phoenix and South Mountain Park to pick up several orders and a CCC truck for return to headquarters. Arrived at Headquarters at 4:00 p. m., May 7, making another long day. Again, on May 9, 10, and 11, trips to SP-11-A, for CCC equipment. Then, on May 19, Bicknell left for Berkeley, California, to bring back more dioramas for the new museum at Tumacacori. As he has not yet returned, the probable lack of coherence in the report should not, in all justice, be attributed to him.

Miss Irene Espinosa, who has been washing and cataloguing pottery sherds most of the month, reports that she has finished some 30 sacks, or lots, of the sherds. Also, she washed about 15 pieces of modern pottery.

Mrs. Gipe has been working all month on the restoration of pottery remains. Twenty pieces were completed, and a good beginning made on several more; the work being very slow and painstaking, as it is necessary to first clean off the old glue previously used to hold the fragments together, re-cement the sherds, filling in the cracks with plastic,

CASA GRANDE (CONT.)

and in some cases, even making complete new sections to replace missing ones, before attempting to restore the original decoration. ~~She reports~~ that the greatest problem is in the painting, as it is extremely difficult to ~~exactly match~~ the paint shades, as well as to give the proper appearance of age and fading shown by the original paint. All work that she and Mrs. Soule, who makes a hobby of pottery restoration, did this month has been on the red-on-buff type of pots and plates.

NEWSWORTHY VISITORS

Regional Forester Bill Wirt and Deputy Regional Forester Ward Yeager, from the Santa Fe office, were Headquarters visitors May 16. Mr. Brockman, Park Naturalist from Ranier, and Mrs. Brockman were guests of the Dodges on the 17th and 18th. Millard Singerman, recently transferred from Headquarters to Petrified Forest, dropped in for a short visit on the 24th.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Total travel: 1938, 2,433; 1937, 2,689; 1936, 2,274.

Of the 2,433 visitors to the monument, 2,232 were contacted on guided trips through the ruins, the museum, or both. A total of 11,757 minutes was spent conducting 319 parties through the ruins for an average time of 36.8 minutes. In the museum, 5,353 minutes were spent with 232 parties for an average time of 23.1 minutes. (See "Casa Grande Visitor Statistics" under the Headquarters division of the Monthly Report.)

A total of 1,122 visitors, composed of 32 separate groups and organizations, made use of the picnic grounds during the month. On May 1, approximately 160 Masons from Casa Grande, Coolidge, and Florence held their annual picnic on the monument grounds. May 4, Mr. James Wells, Farm Agent of the U. S. Indian Service, and Miss Hart, Home Demonstration Agent, brought 15 Pima children to the monument. After being shown through the ruins, they were shown the reel of pottery and basket-making by Junior Park Naturalist Dodge. May 17, a party of four adults and thirty-seven eighth grade children from Glendale school had a picnic supper on the grounds. Phoenix and Tucson Police officers, 200 strong, held their annual get-together picnic here on May 8. On the 11th, a party of five adult teachers and eighteen children from the Tempe schools were taken through the ruins, but never did get to the museum, due to the excitement caused by one of the younger girls fainting in the west room of the ruins. About 125 men and boys of the Tempe and Glendale Congregations of the Church of Latter-day Saints arrived about 3:00 p. m. on the 14th, and, after being conducted through the ruins and museum, held a picnic supper in the camp ground. May 22, 300 members of B'NAI B'RITH, a Jewish organization represented in both Tucson and Phoenix, held their annual joint picnic here on the monument grounds. (Note for the Boss: And WHAT a picnic; being alone, and with this party in addition to the other visitors, plus the injury of one of the CCC enrollees who had to be sent to SP-6-A, your ranger got a

CASA GRANDE (CONT.)

real breaking-in.)

NATURE NOTES

The prickly pear near the headquarters door bloomed May 1--five blossoms appearing between 8:00 and 11:00 a. m. Its neighbor across the walk, the Arizona Rainbow cactus, Echinocereus rigidissimus bloomed sometime between 8:00 and 10:00 a. m. on May 10. Junior Park Naturalist, Dodge, and a visitor, F. Mart, took several still and moving picture shots of it at noon, and the single blossom was wilted by nightfall. The Palo Verde trees of this vicinity have been in bloom all month, and are still carrying a large proportion of their flowers, but the creosote bushes, which began flowering last month have all seeded at this time.

This year's brood of young Rough-winged Swallows hatched out May 19, in the nest on the west side of the central room of the ruins; five birds, this year, and it is interesting to note that the hatching was just three days later than in 1935, when the last nest was noted. Also, in the east room, the nest of a Say's Phoebe shows to the visitor three youngsters, hatched May 23. The owls (young) are showing signs of being able to do their own hunting by now -- for the past two weeks the daily bringing in of quail and rabbits by the old birds has slowed down, and at this time, apparently ceased altogether.

Five rattlers reported during the month, killed down near the canal by the CCC boys. Also, two Gila Monsters were brought into the naturalist office during the month.

BIRD NOTES FROM CASA GRANDE

By G. Gilbert Philp.

Bird notes for Casa Grande could easily run into pages for this month, but space will not permit much elaboration. So I shall mention only the highlights.

Of outstanding interest during the past four weeks are observations made at nesting sites. A Western Mourning Dove, after being disturbed, was found to approach the nest on foot. This, of course, might possibly only be the case while an intruder was close at hand. At any rate, the bird must have realized how much more conspicuous it would be by returning in the customary manner. This should be substantial enough evidence for those that doubt a bird's ability to reason.

While daily observing birds, one cannot help noticing that each has his own idiosyncrasies. For example, a bird's manner at his nest. Some are bold, some are shy. I don't believe the presence of an elephant would keep the tiny Gnatcatcher from its young. While again, a Crissal Thrasher might remain hidden indefinitely and no amount of tramping about would bring the bird out of hiding.

CASA GRANDE (CONT.)

With few exceptions, I have found that the smaller the bird, the more forward and fearless he is. What governs this is hard to say. Perhaps the smaller species have learned that, due to their size, they are overlooked by most. Or maybe they realize that their shading blends in better with the chosen environment. The hawks and other large members pay dearly if they become overconfident. (Conspicuous size seems to be a distinct disadvantage insofar as birds' relation to man is concerned.

The word "always" should be avoided when speaking of nature. The Texas Nighthawk is nearly always seen perched lengthwise upon a limb, for the obvious reason that when in this position, he appears to be part of the tree. However, during the past month, both Watt and I have on three occasions, noticed this bird to be sitting across the limb, which is contrary to most matter published on the subject.

The Texas Nighthawk is quite an aggressive and combative fellow. On numerous occasions, I have seen the male react very much the same as the Western Kingbird toward hawks and owls. However, these two differ in that the nighthawk will even drive its own kind from the vicinity, while the kingbird wages war mainly upon the birds of prey. A short time ago, a pair of nighthawks were seen pursuing two ravens that happened to be passing over. No time was lost by the larger birds in evacuating. The nighthawks were by far the more agile, which is to be expected--they capture the most elusive of insects.

Although the White-crowned Sparrows are not plentiful, they have to some extent replaced the Gambel's, which have not been seen for more than two weeks. However, the White-crowned will very likely leave soon, for he breeds in the higher zones. The Western Chipping and Brewer's Sparrows have also departed for the higher regions.

During the past two weeks, the only two Warblers I have recorded upon the monument are the Lucy's and the Pileolated.

Those birds which are incubating or tending young at date of writing are: Arizona Verdin, Crissal Thrasher, Ash-throated Flycatcher, Say's Phoebe (nest in Ruins), Cactus Wren (Picnic ramada), House Finch, English Sparrow, and numerous Mourning Doves.

The addition of the following birds for the month of May brings our check list total for Casa Grande to 70 species and sub-species:

Dove, Western White-winged- - -	-Melopelia a. mearnsi
Hawk, Western Red-tailed- - - -	-Buteo b. calurus
Hawk, Swainson's- - - - -	-Buteo swainsoni
Kingbird, Arkansas- - - - -	-Tyrannus verticalis
Oriole, Bullock's - - - - -	-Icterus bullocki
Pyrrhuloxia - - - - -	-Pyrrhuloxia s. sinuata
Swallow, Barn - - - - -	-Hirundo erythrogaster

CASA GRANDE (CONT.)

Swallow, Cliff-----	Petrochelidon a albifrons
Swallow, Violet-green-----	Tachycineta t. lepida
Warbler, Lucy's-----	Vermivora luciae
Warbler, yellow-----	Dendroica aestiva

BIRD NOTES FROM ORGAN PIPE CACTUS NATIONAL MONUMENT By G. Gilbert Philp.

Our trip through this monument was not made for the sole purpose of studying birds. We remained neither long enough nor covered enough of the 330,670 acres to get more than a vague idea as to the Avifauna therein.

However, we encountered a vast variety of birds for such arid, hot country. This, of course, is due to the Monument's close association with the Gulf--a commonly used migration route. This species list would be considerably shorter had it not been at the time of year when migration was in progress. In the dry washes, where the mesquite trees were well leafed out, we found most of the birds. A short distance to the north, in the Growler Mountains, a gap from the plain opened into the valley where Bate's Well is located. Here we found the Chipping Sparrow, Lawrence's Goldfinch, Phainopepla, Pyrrhuloxia, Violet-green Swallows, and Lazuli Bunting. Other birds were usually found near washes where trees grew to afford some shade. Away from such places, birds were few.

The most unexpected find was an Olive-backed Thrush--of course, a migrant on his way to a more northerly breeding ground.

A complete list of birds encountered at Organ Pipe from May 12 to 13, 1938, inclusive is:

Dove, White-winger	Gnatcatcher, Plumbeous
Flycatcher, Ash-throated	Dove, Western Mourning (one)
Vireo, Least	Flicker, Red-shafted
Thrasher, Palmer's	Phainopepla
Vulture, Turkey	Wren, Cactus
Cardinal, Arizona	Raven
Quail, Gambel's	Warbler, Townsend's
Pewee, Western Wood	Flycatcher, Least
Poor-will, Nuttall's (some doubt as to sub-species)	Swallow, Violet-green
Bunting, Lazuli	Sparrow, Western Chipping
Pyrrhuloxia, Arizona	Goldfinch, Lawrence's
Kingbird, Western	Woodpecker, Gila
Thrush, Olive-backed	Oriole, Arizona Hooded
Hawk, Western Red-tailed	Towhee, Abert's
Finch, House	Wren, Canyon
Hawk, Desert Sparrow	Sparrow, English
Warbler, Pileolated.	Cowbird, Bronzed

CASA GRANDE (CONT.)

CASA GRANDE CCC SIDE CAMP

The outside plastering of the Shop, Job No. 50, was completed this month, and seems to be holding up well, no cracks having developed under temperatures of over 100 degrees. Sixty-two man-days were expended on this project.

Construction on the Warehouse, Job No. 51, has been resumed, and it is almost ready for the roof. Man-days put in on this job amounted to 146.

One hundred twenty-one man days were charged to Job No. 53, Guide and Contact Work. Enrollees Holt, Rodgers, and Coyle still are acting as guides at the Casa Grande Monument, while Frank Morales is helping out, temporarily, with the headquarters work. Toddy Savage was transferred from Guide to Shop Helper's work on May 2.

Job No. 54, Cleanup, took up 52 man-days this month. This includes work around the camp and over the monument grounds in general.

As the construction crew was running short on adobes, a few more were made up during the month, whenever men could readily be spared from other work. A total of 16 man-days was charged to this work, Job No. 55.

Chaplain Probert held services in camp the evening of April 27th. He returned on May 8, when he held a Mother's Day service here.

Safety meetings have been held at the camp on Thursday evening of each week. Attended by all enrollees not in classes.

The camp was inspected as follows:

April 27	Captain Harvey, SP-6-A.
April 28	Project Superintendent Stevenson and Educational Advisor Beatty.
May 1	Lieutenant Wilson and Colonel Wilson. (NM-2-A)
May 3	Captain Tway, Sub-district Commander.
May 12	Captain Harvey, SP-6-A.
May 14	Educational Advisor Beatty.
May 18	Acting Project Superintendent Knagge; again on May 20.
May 20	Major Hildring, Commanding Officer, Arizona District, CCC.
May 25	Captain Harvey, SP-6-A.

One reportable accident occurred during the month. Enrollee F. Garcia received a slight cut on his thumb May 18. By the 22nd, in spite of the first aid treatment received at camp, a serious enough infection had developed that it was thought wise to send him to Camp SP-6-A for

treatment. From there he was sent to St. Mary's Hospital in Tucson, where he is now recovering.

*****SWM*****

Don is getting pretty well broken in and really wrote most of this report, Al being absent on a trip to Berkeley with a truck for Tumacacori Museum exhibits.

All, by the way, had considerable trouble with his truck, having, among other things, to put a tomato can into one of his bearings as a shim, change the gas line, and work over the carburetor. Of course, he brought her in all right, arriving between twelve and one a. m. and coming into my room to report that he would pull out for Tumacacori about five, a. m., so he could unload and get back that night so he could go to work Sunday morning on his own job. These are just side lights on "How to Be a Custodian".--F. P.

*****SWM*****

WHITE SANDS

By Tom Charles, Custodian,
Alamogordo, New Mexico.

Visitors this month, 7,452; total since October 1, 46,549.

This is another top month for the Great White Sands. With the exception of losing Jim Felton and Margaret, it looks like this month is about all right. I presume we should count Jim's transfer to Fort Jefferson among the blessings too, for it is a nice promotion for a worthy couple. But we will miss them.

I was especially glad, Boss, to have you come over to see us; to direct the finishing touches to the picture which you and Hugh and Chuck and some of the others drew in your minds some four years ago as we all stood on the edge of the desert and speculated whether or not we could ever count on 100 cars of visitors a day. Well, they are here. And the Randeaus, the Maiers, the Tolsons, and Cammerers, and the whole Park Service group have thrown in with us and builded the plant to fit the crowd. I have not found a Park Service official yet who has not acclaimed this headquarters to be the equal of the best in the Service. So you see where they have put us--look at the standard that we have to live up to. So come over as often as you can; we will need your friendly counsel.

Anyway, I do not believe you Bosses know how much we field men get out of your occasional visits. It is all unconscious to you that in your regular conversation your attitude, your criticisms, your suggestions are moulding the policy of the park. For instance, I am sure that Assistant Director Tolson can never know how deeply his words touched my

WHITE SANDS (CONT.)

very soul when, in discussing the prospect of having shade in the Heart of the Sands, he said, "I base my judgment on what I would want if I were in the visitor's place." It is the simple application of the closing sentences of the Sermon on the Mount; "Therefore all things, whatsoever ye would that men should do to you, do ye even so to them; for this is the law and the prophets." To us newcomers in the Park Service, such sentiment gives us a firm foundation. Things may go a little wrong at times, disgust may bubble up within us, but why worry? If that is the foundation on which the Park Service is founded, it is bound to come out right. And if Assistant Director Tolson hadn't done anything else for the White Sands and for me, that one expression was worth the trip. So **come when** you can, Boss. It may be kind of hard on you, but it does a world of good for us.

Did you get that count of Jim Felton's? You know, Jim has always accused me of being the best counter in the Southwestern Monuments, except possibly one or two whom he did not hesitate to name and in whose class I am proud to be. But both last month and this one Jim has even out-counted me. Think of it, 10,700 visitors last month and 7,452 this month! Well, it is my firm conviction that Jim didn't overdo it a single one. They were all there and if he was wrong, he was a few short. But we will never get an accurate count here until we get the electric counter. Anyway it is just good business, Boss, when you can set up \$400 to \$500 to do the work of three men each day. Let's strain a point and get that counter.

Another pleasing experience this month was having Jack Diehl over here taking elevations on the proposed pipe line from Dog Canyon. It looks like that water is the only satisfactory source that we have in sight. For 31 years I have watched the ranchers hunt for potable water out in the vicinity of the Sands and they have never found it; so, to my mind, it is hardly reasonable to believe that the Park Service will find it either. On the other hand, Dog Canyon has furnished a constant supply of good water for the past 50 years and it is only reasonable to believe that **it will** continue. It is my belief that the Dog Canyon water is the solution of our water troubles at the Sands.

We are also glad that Dale King or some of the museum boys are to be here soon for it looks now that the museum is not going to drag any, it will be right up on a par with the rest of the headquarters plant.

The publicity department is not dragging either. This month the Rock Island Railroad has started a **sweel** White Sands window display on its journey from ticket office to ticket office, through Chicago, St. Louis, Minneapolis, and on along the line. It started in the **downtown** office in the Loop in Chicago, with a window full of White Sand, backed with a dozen of George Grant's pictures of the Sand enlarged to 8 x 10, some of the desert cacti, and a few highly colored shards of Indian pottery. Mr. Wooten, in charge of Rock Island tours says, "You can

WHITE SANDS (CONT.)

look out of the window almost any time and see hundreds of people intensely interested in the exhibit". The annual Travel Number of the Monitor, a striking trade journal of the Mountain States Telephone and Telegraph company, featured national parks and monuments this month, running outstanding pictures of nine national parks and 15 national forests and monuments. And, believe it or not, Boss, the Great White Sands drew the front cover, a full page. It was one of Joe Bursey's pictures with beautiful dunes, clouds, mountains, ripples, and four high school girls in the foreground.

White Sands is also blooming out with a windshield sticker. It is made from a pen drawing of the Sands, the San Andres Mountains, showing the recumbent form of St. Andrews, from whom the range gets its name, the headquarters in the foreground, and across the sky the words, "White Sands".

With all this and the prospect of almost immediate construction of the remaining unfinished stretch of Federal Highway No. 70 along the Sands I am sure that you will agree with us that we are doing very well.

*****SWM*****

By James B. Felton, park ranger,
Alamogordo, New Mexico.

TRAVEL

Visitors to the White Sands came in steady numbers all through the month. More visited us on the days in the week than in any month since last fall. There seem to be a few more people going east than west. Most of the visitors encountered by the ranger were of the type we used to have at Petrified Forest during the heavy travel season. They were usually out-of-state people, many of whom are planning to visit other National Park areas.

"Weekenders" were as numerous as ever, but they came at all hours of the night, so getting an accurate count of them was rather difficult. Our figures show that we counted 877 cars and busses with 3,726 people. Highway 70 provided a contact for as many people as ever, so if we double our check count for these and the "night owls", the total travel for May would be 7,452 visitors in 1,754 vehicles.

CONSTRUCTION

Other than the drainage ditch project, all work by the RD was confined to finishing jobs started earlier in the year. About 25 per cent of the drainage canal is finished. Plastering in the Utility Area was completed. Our Oil and Gas House is ready for use. Barrel racks and shelves in this unit are in place. Wiring of the buildings is all

WHITE SANDS (CONT.)

done and 50 per cent of the service fixtures are placed. The air compressor has been installed in the Oil House but the proper fittings to connect this machine with the outside hose have not been obtained. Plans call for another work bench in the garage. However, there are no windows in this structure so it seems rather useless to add this bench. Other than making this addition, our garage is ready for use.

Residence #2 received some attention since my last report. The living room floor has been laid with a red topped concrete finish. The work was very well done and in the opinion of the writer, will be much easier to keep than the tile floors. The boys flooring the bedrooms ran short of oak again, so it looks as if we are going to have another long period to wait before reporting all the floors in the house finished. After plastering the bath and a few places where the wind blew, the residence will be ready for paint.

Finishing touches are still being applied to our Museum-Administration Building. Flagging the patio of this structure was once started, but the limestone rocks used were so rough it was decided to substitute sandstone from the San Andreas Mountains, 40 miles distant. The job now remains at a standstill, as none of the project trucks can be spared to haul new flagging material.

MUSEUM

Mr. S. L. Gibbons of Remington Rand, Inc., spent May 18 and 19 supervising the assembling of our museum cases. They are beautiful to behold, with very narrow aluminum frames which give the maximum in visibility. Leveling up the cases on uneven floors gave some difficulty. This was especially true of the large cases. Our expert recommended pouring a two-inch concrete base which would be perfectly level for these two cases.

Space for nine of ten cases was found in the two exhibit rooms. The naturalist staff may be able to make another arrangement that will include the tenth case. When the fixtures were ordered, someone evidently thought about a diorama of our Dog Canyon Indian fight. From the size of the two cases they must have figured on using real live Apaches. Perhaps we could make soldiers out of the Park Rangers.

WEATHER

May 3 announced our worst dust storm of the season. All work on the project was halted at noon. However, during the last month we have only had three days when the wind made travel conditions unpleasant. Thunder showers have threatened to soak the monument on several occasions, but only made good on May 9, when nearly a half inch of rain fell in 45 minutes.

WHITE SANDS (CONT.)

ROADS

They are somewhat improved over last month. Some of the kinks in the unpaved section of the monument highway have been ironed out. Clay which is pretty well mixed with white sand was removed from the turn-around area, then relaid on the worst curves. This mixture seems to hold the moisture and packs hard enough to give us a firm roadbed on some of the loose sandy turns. We appreciated the loan of several laborers from the project that made this improvement possible.

Highway 70 from the overpass on the east to the monument boundary is being paved. From the progress made by the contractor in the past 10 days, three weeks more should see the job completed. In the meantime, travel to Alamogordo has been routed over the old road. As far as the county line toward the west, Highway 70 is better, but from this point to Organ Pass there are many large chuck holes.

GENERAL

Other than my being a bachelor most of the month everything is normal. On May 6 an official trip was made to El Paso to exchange gas water heater thermostats with the Crane Company. Our trouble with this gadget is now solved. While in the city the ranger conferred with Mr. Chrysler of Momsen-Dunnegan-Ryan about the failure of our gas stoves to operate correctly. They promised to send a service man out to correct our trouble. The matter has been taken up with them again by letter in the past week.

As you will note from our list of special visitors, the Monument served as a playground for many school parties. Special trips for the graduates of both grade school and high schools are traditional in the West. Nearly all the schools came seeking recreation; ball games, rolling down the sand hills, surf boarding, and picnic lunches seem to be main attractions.

SPECIAL VISITORS

Austin High School Senior Class, 245 students and teachers, from El Paso, Texas.

Farwell High School, Biology Class, 35 in party: Farwell, Texas.

New Mexico School of Mines, Socorro. Dr. Needham in charge.

Twenty-three students.

Bowie High School, Senior Class, El Paso, Texas. Forty in group.

Deming High School, Senior Class, 51 students, from Deming, New Mexico.

Eunice High School, Junior and Senior Classes, 65 in two parties, from Eunice, New Mexico.

Mesilla Public Schools, 95 grade school children, from Mesilla, New Mexico.

WHITE SANDS (CONT.)

Forty grade school children from Las Cruces, New Mexico.

Junior and Senior Classes, Alamogordo High School, 75 in party.

Twenty-five children from the Whiteface Public Schools camped overnight in the monument on May 13.

Dr. Osgood, of the Field Museum, Mr. Nichols, and Mr. Gorham are camping at Adobe Walls. They expect to spend at least ten days trying to catch some of our white meadow mice.

PARK SERVICE VISITORS

April 25. Dr. Gould spent the day in the Alkali Lake flats guided by the ranger.

April 27. Mr. Lyle Bennett and Mr. V. L. Randeau, of the Regional office.

May 7. Mr. Dorr Yeager and Junior Park Archeologist Charlie Steen.

May 13. Architect Cecil Doty, of the Regional office.

*****SWM*****

Needless to say, we all had a grand meeting at White Sands last week and think we did quite a bit of good. Tom and Jim have a great headquarters lay-out and it is too bad that Jim and Margaret are moving away to greener fields just as the new buildings are ready to go into use. Taking it by and large, it is one of the prettiest jobs we have in the whole Southwest and although it was necessarily slow in the construction and more expensive than a contract job, I believe Johnnie has given us a real job and we are all very proud of it.

It seems to me that Mr. Tolson came along and put his finger on the solution of the picnic ground difficulties at White Sands. It is pretty clear, after two or three year's operation of the road, that the tourist wants to picnic out in the Sands and not on the edge of them. It is also clear that he wants some shade in which to picnic. I was quite sure, in my own mind, that ramadas, or brush shades, were not the answer. I had hung the problem up in the corner, waiting for the lightning to strike, and here Mr. Tolson came along with the answer.--F. P.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 193; total since October 1, 542.

If every month were on an equal with May of this year, I would be a very busy man in addition to having a grand time. There has not been a dull moment, and with all that I have lined up for the balance of the month, what is to come will be on a par with what has past. Visitors have been quite frequent; we have had visits from two departments of

CANYON DE CHELLY (CONT.)

the Regional office, and with the next few days bringing us a couple of temporary rangers, de Chelly is ready to start the season with a bang.

Early in May a survey was made of both "The White House", in de Chelly and "Antelope House" in del Muerto, with protection of ruins in mind. Both are in need of some protection and it is fortunate that we are able to give them the protection we can. It was early for car travel and it was necessary to visit del Muerto horse back. I walked down the trail and visited the White House. I guess it is fortunate that I did, or I might not be here to tell the tale. I am a little old for horse-backing.

Only a few days after this survey we had the opportunity of using some heavy equipment belonging to the CCC camp here and your office was gracious enough to allow us to dig out of the hole this house has always been in. The entire first impression is different and with the other work that is being done, I feel sure that the visitor will be much more impressed than before. We have altered the road somewhat in the leveling process and this change tends to direct visitors toward the office, and gives us better patrol protection.

The leveling was just finished when we had the pleasure of a visit from Jack Diehl, in whose company I went over many of the problems that I thought were of some bother. This was my first chance to really go over any problems with Mr. Diehl, and I wish I might do it more often. He not only solves your problems in a most satisfactory manner, but is really an inspiration. I know that I was able to look at things in a much better light and with considerably more calm after his visit than before. The sewer, water, roads, and everything I could possibly think of was presented to him, and while we were still in the process of going over these features, who should drive in but Chuck Richey. We included Chuck in the session and with two men on the ground I had a grand time. With Chuck and Diehl, we made an inspection of the road between here and the White House, and a little after lunch Mr. Diehl departed and Chuck and I took up the plastering of the residence. In locating, or attempting to locate, some white earth, we were driving most unconcernedly along a dry arroyo bed, viewing the banks for suitable material when just instantly we dropped into the softest muck I have encountered in this section. I have had dozens of cars stuck in the canyons, but this was just impossible to dig out. With the stack of boards which I carry for just such cases, we were helpless. So while it was not dangerous from the standpoint of losing the car, the harder we attempted to dig out, the more complicated we made the situation. Giving up in despair, Chuck and I walked a couple of miles to the CCC camp, routed out a couple of the obliging members and with a wrecker and a winch they fished us out with the greatest of ease. While Chuck did not actually mention this, Boss, I am sure that I got him home sooner and did not walk him nearly as far as when a Party, Frank Pinkley, Isabelle Story, Ruth Richey, etc., were stuck in one of our arroyos. By the way, it was the same wash, but

DE CHELLY (CONT.)

lower down that I did the trick. We will cure Chuck of going into that particular wash in de Chelly after another time or two. Anyway, it did not stop Chuck Richey. He was up again after supper and we worked on matters for the following day until midnight. The day following, Chuck was just one of the laboring men. With a trowel, hammer, and what other tools he could muster, he really put the elements to shame when it came to tearing down the walls of the house. Loose plaster was knocked off, holes patched, and mixtures of bitudobe dotted all over the side of the house. I was somewhat skeptical of the results and think Chuck was a little disappointed in me for my attitude, but it was only a short time until he won me over. The stuff turns water like a duck's back, and is seemingly as hard as a brick. If it will not disintegrate rapidly, and I see no reason why it should, I think we really have our wall problem solved. We are fortunate enough too to be able to give it two coats, using lime in the under coat, and a thin plaster coat in a darker color than the lime produces. After a week the work is moving along rather slowly but thoroughly and I am well pleased with the result. A couple more weeks will complete this and other little odds and ends, making our unit much more complete in many respects. We erected a flag pole and, of course, the flag always helps in attempting to locate a Government station.

Visitors have been quite numerous. One hundred ninety-three for the month and, too, this month we are going up the Canyons on the fifteenth, a month sooner than last year. Already the Canyons are drying out until it is hard for the ordinary tires to travel the dry sands. When the canyon trips start, the rim trips drop off, unless it is the first look out, and here, again, the matter of contacts has me worried. The possible contacts are still there, but with the Canyons passable are not generally used. While the only percentage that worries me is the percentage of satisfied and informed visitors I release, my percentage of contact, based on possible stations, is going to be down considerably.

Regular inspections were made in addition to a couple of special ones. Several trips to town were made for supplies and materials. Much favorable publicity was given us in the May 8 edition of the Kansas City Star. The pictures and article were both much appreciated. A week to the day from the time the article appeared in the Star, we had a visitor here from Kansas City. He was starting to the coast the day after the article appeared and re-routed through de Chelly because of it. A couple of letters have been forwarded from the Washington office, requesting information as a result of the article, and I have a couple of other letters from different parts of the country mentioning the story and asking for information.

The Soil Conservation Service has fenced the planting and if no severe floods occur this summer it should be a wonderful addition. The fence makes our entrance into the canyon a little more difficult, but I feel the advantages gained offset the disadvantages. This Service plans,

DE CHELLY (CONT.)

too, according to Mr. Fife, who called on us yesterday, to do some piling at the point in front of the White House where it is so hard to hold a fence. I will be glad to see this done, as it will, if anything will, protect that bank from washing.

The concession has dressed up fit to kill this month. A new plaster coat, redecorating all the interior of the dude rooms in addition to their own home, and with future improvements they plan, the whole unit here will be very pleasing to the visitor. First impressions are worth a lot, and the place should certainly look better now.

*****SWM*****

It is certainly to be hoped that the new bitumuls finish will be permanent on the Canyon de Chelly house. As we recall it, we protested the adobe finish on the outside of that house as being unstable, but were told by the Branch of Plans and Design that it would take only three or four days work per year to keep it in good condition. Make that hundred-dollar limitation we gave you do the job if you possibly can, Johnwill, because we are going to be pinching pennies before the end of June.--F. P.

*****SWM*****

TONTO

By Thomas B. Onstott, park ranger,
Roosevelt, Arizona.

Visitors this month, 295; total since October 1, 3,847.

Taking the month as a whole, I believe it has been one of the coolest Mays yet. However, this did not seem to encourage the tourist to travel, and the number of visitors is still far short of last year.

As the month was devoted mostly to repair of the trail and to clean-up, it is probably just as well that the place was not over-run with visitors.

Three official trips were made to Globe: one to pick up an express package which turned out to be the Snaketown Report for the budding young library here (thanks to Gila Pueblo); the other two trips were to return empty gasoline drums that have been collecting here for some time.

The other day, some men were digging a sewer at the Water User's Canal camp and dug up several prehistoric pots. Some of the pieces came out whole and disappeared, but the canal superintendent very kindly got what pots he could and turned them over to the monument. There were two Roosevelt black on white pieces--one bowl and one jar--and a large Gila red bowl. All needed mending, and I hope that I can get this done before I leave here.

TONTO (CONT.)

The total visitors for this month was 295 in 93 automobiles.

The senior class from Hondo High School, Hondo, New Mexico, stopped in for a while yesterday on their way to Grand Canyon. They had to admit that this country up here is as pretty as New Mexico.

Although there was terrific competition from large swarms of gnats, I think that the trail profited by my efforts and the ranger here this summer should have little trouble repairing it after rains. Well, anyhow, good luck to him, whoever he will be.

*****SWM*****

Tonto was down in its travel for the month; 295 this year as against 413, 365, and 398 for former years. There seems to be a general quieting of travel through the district and Tommie is having his share of it.--F.P.

*****SWM*****

CHACO CANYON

By Lewis T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 851; total since October 1, 3,068.

The roads in both directions have been pretty fair this month except for the sandhill north of Pueblo Bonito. This has been in bad shape for the last six or eight weeks. The road leading from Highway 55 through Chaco Canyon National Monument to Crownpoint, New Mexico, seems to be the road that no one wants or is interested in enough to repair. It is also a road everyone wants to use.

This month I have placed new signs on the road every five miles all the way to Thoreau to Highway 66, also from Bonito north to Highway 55. I have placed 10-mile markers on Highway 55 to Aztec. This makes a total of 22 markers we have painted and placed along the approach roads this month.

WEATHER

We have had pretty fair weather this month except for a few stiff west winds. On May 6 we had $5\frac{1}{2}$ inches of snow and also a little rain on the same date. Total precipitation on this date was .28 inch. On April 26 we had .03 inch and on April 29 .02 inch. This makes a total of .33 since my last report.

The maximum temperature this month was 86 degrees; minimum was 22 degrees.

We have had five cloudy days this month, eleven partly cloudy, and the balance clear. On six days since the 23rd of April we have had

CHACO CANYON (CONT.)

stiff wind.

NEWSWORTHY VISITORS

On May 2 Mr. and Mrs. A. Reiman, of Denmark, were visitors at the monument, spending the entire day viewing several of the ruins and making the cliff trip. They had lunch with the Custodian and family. The Reimans were very interesting people, and were certainly enjoyed by the H.C.W.P. and myself.

Mr. O. L. Downing, county agent of McKinley County, and Mr. E. C. Hollinger, from New Mexico State College, were more or less official visitors to the monument, as they were looking over the range conditions with some of the Soil Conservation Service officials.

On the lucky date, Friday 13, Lydia H. Rippey, senior sponsor, and Leona Thomas, junior sponsor of Aztec High School, accompanied by 52 juniors, seniors, and others from Aztec, spent the day in Chaco Canyon.

On May 10, Florence Clark, Home Economics teacher of Crownpoint and other schools within Crownpoint District, was a monument visitor, bringing with her 22 of her Navajo students. They spent the day in the monument having lunch on the picnic grounds.

On May 22 a group of seniors from Forsan High School at Forsan, Texas, accompanied by their principal, Mr. Martin, arrived at Chaco Canyon. They spent the night here and most of May 23 viewing several of the ruins and climbing the prehistoric stairways in the canyon. Mr. Martin takes his seniors on a trip each year. This year he planned to visit Chaco Canyon National Monument, Laguna Reservation, Painted Desert, Petrified Forest, Elephant Butte Dam, Walnut Canyon, Grand Canyon, Bryce and Zion Canyons, Boulder Dam, Los Angeles, Long Beach, Catalina Island, and San Diego, returning home by Yuma, Phoenix, Coolidge Dam, El Paso, and Juarez.

Scout Master Herbert and Mrs. Herbert, Den Mother, were monument visitors this month, accompanied by seven of the Cub Scouts. They spent the entire day here in the Chaco, viewing several of the wonderful ruins and climbing many of the prehistoric stairways. The H.C.W.P. and the Den Mother prepared lunch for them while we were out climbing the mesa behind Bonito. We all had lunch together, and I'm telling you those little guys were certainly hungry after coming 64 miles and then climbing the mesa just before lunch. Our son, Lewis T. Jr., has been a member of the Cub Scouts for several months. We are very proud of him and his scout work, and he is very proud to be a member of that group. They plan to make a two week trip this summer and we hope to have them in Chaco for a couple of days.

Mr. and Mrs. W. S. Firman, of Los Angeles, were monument visitors

CHACO CANYON (CONT.)

this month. Mr. Firman is commercial agent for the St. Louis Southwestern Railway Lines.

Dr. Herbert E. Bolton, of the University of California, and a member of the Park Service Advisory Board, accompanied by William R. Hogan, of our Regional office at Santa Fe, made a short visit to the monument May 15.

Judge William E. Muse, Dallas, Texas, was the most interesting visitor to talk with that I have ever met. Judge Muse states that he has been to every foreign country and was a visitor at the official opening of King Tut's tomb. Judge Muse states that Methuselah may have lived over 900 years, but he has already lived a thousand during his part of a lifetime.

Mr. Sydney H. Ball, of New York City, was a monument visitor this month, accompanied by Glen W. Atterbury and W. R. McHeuzin. Mr. Ball is consulting engineer for several of the diamond mines of South Africa.

SOIL CONSERVATION SERVICE VISITORS

Paul Phillips, W. W. Morris, A. E. Borrell, R. V. Compton, W. N. Stebbins, A. N. Jenson, W. R. McKinney, L. A. Hill, Mr. Young, Bob Frazer, Mr. and Mrs. McGinnis and son, C. J. McCash, F. D. Matthews, Dell G. Shockley, A. Fife, Mr. and Mrs. A. J. Dickson and daughter, Mr. and Mrs. Clarence Campbell and two sons, Mr. and Mrs. John Murray, Mr. and Mrs. Biffel Morris and daughter, Merrill Strong, O. Emil Giannia, E. J. Carpenter, F. G. Renner, and E. Jutz.

OFFICIAL VISITORS OF HEALTH DEPARTMENT

Mr. H. D. Simmons, sanitarian of McKinley and San Juan Counties, accompanied by his wife and two sons, and Miss V. Mayer, County Nurse of San Juan County, visited Chaco Canyon this month. They inspected sanitary conditions and gave typhoid shots to a number of children in the canyon.

OFFICIAL NATIONAL PARK SERVICE VISITORS

Mr. Jack Diehl, Regional Engineer, from the Regional office at Santa Fe, New Mexico, and Mr. William R. Hogan, from our Regional office, were official Park Service visitors this month. (Mr. Hogan was also mentioned in the newsworthy visitors).

PERSONNEL

Andrew J. Lavender (Jack) entered on duty as guide April 23 and worked until May 15. Ranger Homer F. Hastings and family arrived in Chaco on May 15 where he took up his duties as Ranger-Historian on May

CHACO CANYON (CONT.)

16. Ranger Hastings and family are occupying as quarters the two rooms we have reserved at the trading post. Ranger Hastings has been identifying plants collected here in the monument while he attended school at Western State College, Gunnison, Colorado. He will attach a report of the different plants he has identified.

VISITORS

There were 851 visitors this month coming from the following 22 states and from Denmark: Arizona, California, Colorado, Florida, Illinois, Kansas, Kentucky, Maryland, Massachusetts, Michigan, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, Oklahoma, Pennsylvania, South Dakota, Texas, Virginia, and Washington, D. C. The count of cars, trucks, and busses totals 275.

THREATENING ROCK (BRACED ROCK. PROPPED ROCK)

West end- - - - - -3 1/16 inch.
Center- - - - - -3 6/16 inch.
East end- - - - - -3 5/16 inch.

HELP!

*****SWM*****

A LETTER

From Carolie McKinney.

I am very pleased to become a member of the big happy family of yours in the Southwestern Monuments. I hope I can do my part by operating a bird banding sub-station in the Chaco, the grandest place in the Southwest. I have my bands, manual, a copy of "Birds of New Mexico", and a couple of traps. As soon as I get my permit from the Biological Survey, I will start to work.

I certainly want to thank you, Boss, also Mr. King and Mr. Dodge, for the splendid help you've given me in starting my bird banding work. I would certainly appreciate any help or suggestions Betty Jackson or any other of the H.C.W.P. Clan could give me in this work.

Following are the birds I have seen in the Canyon this month:

Northern Shrike	Ashy Ruby-crowned Kinglet
Gambel Sparrow	Desert Black-throated Sparrow
English Sparrow	Canyon Wren, Rock Wren
Western Lark Sparrow	Canyon Towhee
Western Mocking Bird	Nevada Red Wing
Broad Tailed Humming Bird	Scaled Quail

*****SWM*****

CHACO CANYON (CONT.)

We are certainly glad to hear from Carolie and will be mighty glad to get her bird records from the Chaco. I think Betty will be there with the help if you have any definite problem to put up to her, but as for general instruction on bird banding; there is not much to be said outside the printed instructions. You just begin, and then you will find there are some things you don't know, then you send out the S.O.S. call and Betty or these boys at headquarters, or some one else will come to your aid.--F. P.

MOBILE UNIT

*****SWM*****

By Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

In the four-week period since our last narrative report, we have expended 344 man days, divided as follows among five jobs:

(1016 - 1)	Drain plaza and rooms-	- - - - -	-45 man days
(1016 - 3)	Repair concrete capping-	- - - - -	154 man days
(1016 - 4)	Wall support, Bonito -	- - - - -	-52 man days
(1016 - 5)	Wall patching, Bonito-	- - - - -	-30 man days
(1016 -20)	Wall support, Minor ruins-	- - - - -	-51 man days

All camp and equipment maintenance is included in the above figures.

The 45 man days on Job One, drainage, have come from four projects, one completed (Room 339), one held up for other work (Room 110), and two in progress (West side of Kiva I and Room 251). The work on Room 339 was reported last month as repair to the north side of the room where water coming from an unexcavated room to the north had washed out a considerable portion of both the doorway and the base of the wall. This part of the work was completed under wall patching and then, to stop further washing, a trench was dug along that side of the wall which is in the unexcavated room and a seal coat of bitudobe plaster laid on the masonry. This seal coat runs down to a catch basin at floor level there and into a drain leading out into Room 339. With the trench refilled and the surface drainage corrected as far as possible in the unexcavated room, very little water should reach the seal coat. What does will be turned down and run out through the bottom of the doorway.

Drainage of Room 110 has been held up till a wall support job can be completed on the rooms adjoining it on the south. Room 110 is the one located in the northwest portion of the ruin where there are two complete rooms with original ceilings, one directly above the other. The lower room is below the present level of the surrounding area and the walls are continually damp. A trench has been cut along part of the west side, all of the north and the east sides, and a seal coat applied to the wall on these three sides. On the south, support work is being done on an unstable wall between rooms 54 and 57 before trench-

ing is carried on there.

Of the drainage jobs now in progress, that on Room 251 is essentially the same as was done on 339. Water collecting on the floor of 251 has washed down through a doorway into 249 to the south, with a floor level some seven feet lower, and cut out part of the doorway and the wall. The wall has been repaired and new lintels placed in the door under job 4, Support. Seal coat is now being applied to the south wall of Room 251 from the present ground level down to a foot below the floor level of room 249. At floor level there will be a catch basin and drain similar to that in 339. Also in progress are repairs to the west side of Kiva I under drainage. Some work has been done on this kiva previously in removing the fill from the kiva corners surrounding it. In this case, it did not entirely correct the damp areas in the west wall, and they have been increasing of late. In preparing to seal the west side of the wall down to the base, a portion of the dampest area collapsed. This is now being repaired.

Under repairs to capping, Job 3, the first work completed this month was the final 15 yards of capping on the series of 16 rooms along the front of the ruin on the west side. Wall repairs here and most of the capping had been completed last month. The final 15 yards were held over, due to shortage of bitudobe. Seven yards of capping were also laid in the front walls of 339 and 340 where new work had been completed. The greatest amount of this labor on capping went to hauling materials for and laying the concrete trail in the east side of the ruin. This trail is 71 yards long and varies from three to four feet in width, depending on location. It is four inches thick with the facing laid up of stone in concrete mortar. Expansion joints are set four to six feet. This trail begins with a series of steps from the plaza at Room 165, goes along the north wall here to Kiva J, circles the south curve of Kiva J and thence along between Kivas E and I to the northwest corner of the square enclosing Kiva C. Here it rises by steps to the top of C at the west and follows the top of the wall around the south half till it meets Kiva D on the east. On D it goes around the north curve to the east side where it stops. This is the trail as laid out by Dale and Mr. McKinney last fall. From the top of Kiva D it is necessary to turn back and retrace the way till the bottom of the steps are reached at I. From there it is intended to go around E to the east and into room 251. The piece around E to room 251 has not yet been constructed.

Custodian McKinney and I have been trying to find some way to get the trail down from the top of Kiva D without having to retrace so much of the way. This would only be possible by building a short bridge across area 238 and a long wooden stairway down into room 245. This stairway would be better than two stories in height and we were undecided as to just how many of the visitors would want to use it, even though it should be built solidly and provided with a hand rail. If the party split at this point and some came down the stairway and others retraced

MOBILE UNIT (CONT.)

their steps and came back around, it would be a difficult job for a one-to-a-party guide to handle. So we are deferring the rest of the trail around Kiva E and into Room 251 until this matter of the stairway is settled.

Job 4, Wall support, has been carried on in four areas: support of the doorway in Room 251 as noted under Drainage, completion of Room 340, begun last month, and two other jobs, Rooms 57 and 98. On the north wall of Room 340 the concrete core laid through the wall to prevent its bulging further out of plumb was completed and the top third of the wall rebuilt over it.

Room 57, west wall, is the one which has been noticed by so many visitors. Here is what is now a ground floor room built over the fill of an older and lower room. The fill has settled so that the central part of the wall has slumped. Approximately one third of the way up, the wall had two large beams set lengthwise in the core. Now the lower part of the wall has settled away from the beams and they alone are supporting the upper two thirds of the wall. At present we have the lower part of the wall jacked up and are laying a foundation under it. With this completed, we intend to support the upper two thirds of the wall independently so that the weight will be taken off the two beams but so that they can still be seen, as this is one of the more interesting features in the construction of the ruins. It almost appears as if the builders expected the fill to settle and knew that the wall would crack and fall unless supported internally.

Room 98 has on the north side a two and a half story wall. At the first story the lintels of an extra large door have rotted out and the beam holes at ceiling level broken down. In repairing this doorway, the unsupported masonry was jacked up and a steel plate inserted as a lintel. The steel lintel is longer than the wood lintels and the ends are firmly blocked up with masonry. The shorter wood lintels were then set in place. By this method with the steel lintel being longer and supporting the weight, rotting of the wood will have no effect upon the strength of the wall. With the lintel replaced, four large beam holes were repaired and two yards of repointing done adjacent to them.

No new wall patching jobs were begun this month, but thirty man days were spent completing two jobs left over from last month. The largest of these was done on the north wall of Room 98 A where four square yards of veneer had fallen from the central part of a second story wall. This veneer, which was offset slightly from the wall above, has now been replaced and the top of the repaired offset capped. A doorway near the bottom of the wall was also repaired. The second job finished was that in Room 339. Four yards along the base of the wall were replaced and the doorway rebuilt; the east side completely.

The work at **Kin Klizhin** under Job 20, support of minor ruin walls,

MOBILE UNIT (CONT.)

was completed with the capping of 53 square yards of new work previously reported. This completes the projected work on this site.

*****SWM*****

It looks like Gordon was busy last month with his Mobile Unit.

We are now coming to an argument as to the permanency of the work the Mobile Unit is doing and it looks like we will have to hold a meeting of the various interested parties at Chaco Canyon to come to some decision. The engineers are in doubt as to how the work will stand up, whereas the archaeologists seem pretty well satisfied.--F. P.

*****SWM*****

CAPULIN MOUNTAIN

By Homer J. Farr, custodian,
Capulin, New Mexico.

Visitors this month, 1,500; total since October 1, 6,200.

In reporting the happenings of this monument and its surroundings for the month of May, I find at this writing possibly fifteen hundred welcome visitors to the monument, these from a wider range of states than usual.

Among those visitors were Jack Diehl and Charles Richey. They were here on the thirteenth, I believe, looking over the retaining wall proposition.

The weather man gave us some fine snows at the beginning of the month. From the third to the twelfth we had considerably heavy moisture--possibly two inches. Around the seventh we had an extremely cold snap for this time of the year, reaching as low as 20 above.

Road maintenance was in order from the third to the nineteenth and now the road is in perfect condition.

And still those porcupines are dealing the young timber plenty of misery. I notice fresh cutting almost every day, but what are left are rather elusive. Some tourists report seeing plenty of deer, as many as fourteen together a few days ago.

*****SWM*****

We held quite a session down at Alamogordo in which Randy and Jack and Hugh and I sat in, covering the proposed work on the road at Capulin. After a long discussion, we decided that we could not squeeze by under the RD regulations, as we could not get enough materials money to handle the job. We will, therefore, have to wait until some other emergency

money may become available, and in the meantime the upper part of that mountain is raveling down into the road.--F. P.

*****SWM*****

NATURAL BRIDGES

By Walter Johnson, custodian,
Blanding, Utah.

Visitors this month, 20; total since October 1, 1938.

I told you in my April report that it had been a cold and wet month. Now May is nearly gone and it still rains, but it looks like spring may be just around the corner. I tried to drive out to the monument on May 3 but could get no further than Kigalia. Then on May 11 I got as far as the pass through the Bear's Ears, looked down over the country and saw that it would be possible to get through in two or three days. I then notified Mr. Black, of the State Highway Department, who sent some equipment over the road and it is now in good shape.

In my April report I said that I would take a ten day trip with a professor from the University of Utah. On the thirteenth I sent Junior to the Monument to hold it down while I was gone and I then drove to Salt Lake City. On the fourteenth I left with sixteen people in five cars; we were gone nine days and visited the following places: San Rafael Swell, Emery County, Utah; the Arches National Monument, where we met Custodian Reed; Natural Bridges National Monument; the Goose-necks of the San Juan River; Monument Valley; South Rim, Grand Canyon National Park; Zion and Bryce National Parks; then back to Salt Lake.

Each day Dr. F. J. Pack, leader of the party, would lecture on the geology of the country and he depended on me to tell of the pioneering and settling of the region. I was called on to tell some Indian stories and give some Navajo and Ute songs and dances, too.

While Junior was at the monument, his only party consisted of Dr. H. C. Bryant, Dr. Charles Gould, and Dr. W. B. MacDougal. I am very sorry that I was unable to see them. About all they talked about while they were here was the beauty of the country and the poor condition of the approach road on the monument (the portion I call the Tumble-in). Frank, that piece of road should be worked over as the road here is good all the way from Blanding until it reaches the monument boundary. For about a fifth of a mile the road is very bad. Can't we do something with it? The road could be put into good shape for two or three hundred dollars.

There is plenty of water here at the Bridges this spring and there have never been more wild flowers than there are now. I wish more people could be here.

NATURAL BRIDGES (CONT.)

I have been notified by four different groups of people that they would be at the Bridges this week-end as it is a holiday so I am sailing out in the morning.

*****SWM*****

We envy Zeke that ten-day trip through one of the most interesting parts of the Southwest, where you have geology sticking out of every mile of the country, where there are a dozen grand views every day, and where the road is bad enough to keep a man from going to sleep at the wheel.-F.P.

*****SWM*****

EL MORRO

By Robert R. Budlong, custodian,
Ramah, New Mexico.

Visitors this month, 175; total since October 1, 1,005.

The month of May brought us fewer visitors than the preceding month. Weather was threatening, we had many days of very high winds, and the mercury in the thermometers remained too low for most people to enjoy trips down here, apparently.

WEATHER

Minimum temperature during the month was 21 degrees on the 7th. maximum, 83 degrees, May 14. Snow fell on May 3 and 6, the total depth being 3-3/4 inches. Total precipitation was .46 inch.

VISITORS

Total number of visitors for the month, 175. Of these, all were contacted but eight who arrived at a time when the Custodian was absent from the monument on official business. Our visitors took trips as follows:

Inscriptions, (guided): No. trips, 28; total persons, 105; total time, 1,765 minutes; average persons per party, 3.7; average time per trip, 63.03 minutes.

Inscriptions, (unguided): 1 trip; 2 persons, 30 minutes.

Trail (unguided): No trips, 7; total persons, 24; total time, 530 minutes; average persons per party, 3.4; average time per trip, 75.7 minutes.

Trail (guided): 1 trip; 2 persons; 210 minutes.

Picnics, 4; total persons, 18; total time, 265 minutes; average

EL MORRO (CONT.)

persons per picnic, 4.5; average time, 66.2 minutes.

Office visits (educational): No. visits, 18; total persons, 50; total time, 2,370 minutes; average persons per visit, 2.8; average time per visit, 131.7 minutes.

May 18, Mr. Erle L. Hardy, meteorologist from Albuquerque, made a visit of inspection to the monument.

May 22, Mr. Rudolf Smits, Secretary of the Legation of Latvia, Mrs. Smits, and party visited the monument. They arrived just before dark, and forgot to sign the register. I regret I did not get the names of the entire party, but it was not until they had left that it was noticed they had not signed the register.

Quite a number of this month's visitors were "repeaters". We find that the number of these increases from month to month.

ROADS

Roads leading to the monument were in fairly good condition during the first of the month, but continued high winds whipped much of the sand out of the roads nearby, exposing lava ridges, and this resulted in some very rough spots. The wind also raised havoc with work done by the custodian on roads within the monument. The loose earth of the fills was blown away clear down to the harder ground, and the work of some hours completely spoiled.

TRAILS

Considerable work was done on the north trail. This work is not yet finished, but another week or ten days should see it completed. Old drainage ditches were cleaned out and deepened, and the trail for over half its length re-graded to slant in toward the side of the mesa. It had weathered to such an extent that the slope was out away from the mesa, and the first rain would have washed out much of the trail.

Trails around inscriptions have received much attention, being kept raked and graded. However, the high winds blow the sand around rather badly, so the work has to be done over again within a few days.

WATER

During the month pipe dies were received, and the pipeline repaired. This had burst in numerous places during the past winter, as a result of the failure of some water-hauler to drain the line one day when the custodian was in town for supplies. The entire length of pipe (approximately 350 feet) was dug up, the burst places cut out, and the ends of the pipe threaded; each joint was taken apart and threads checked, and the pipe

re-coupled. The trench was deepened to permit the pipe to assume a straighter line and to avoid air pockets, and the pipe buried again. A tee was put in the line and pipe run into the cabin so that we now have running water here for the first time. Due to the manner of installing this line into the cabin, the flow to the far end of the pipe, where water-haulers get their supply, became considerably reduced so that the flow is only about half what it used to be. Unfortunately, this means that it now takes about fifteen minutes to fill a single barrell, and as a consequence, many water-haulers seem to be going to other places for their water supply. Possibly the slow flow of the water may be due to the fact that it has become so thick that it no longer flows readily.

The line of posts marking the turn-around in front of the cabin has been moved to widen the road at the end of the pipeline, in order that water-haulers will not block the road.

WILDLIFE

Our quail seem to be doing well, though they have scattered considerably outside of our boundaries. The cooperation on the part of neighbors in the protection of these birds is most pleasing. From time to time nearby farmers come to the cabin to report proudly that one or more pairs of the birds are nesting in their fields, and we are quite hopeful that the quail will increase.

The nest of the Golden Eagles now contains one youngster, and at the rate the parent birds are feeding him prairie dogs and rabbits, he should increase in size rapidly. Visitors always find these eagles of great interest.

As I write this report I am being watched constantly by two owls that are perched on a shelf near the table, taking great interest in my typing. They were brought to me last week by some children who live nearby, and they have made themselves quite at home. They should soon be able to fly, when they will be liberated.

SIGNS

Numerous directional signs were made during the month and placed outside the monument. Several of them have survived the rock-throwing of Navajo shepherders, but all signs are short-lived, and new ones have to be made from time to time.

GENERAL

The temporary meathouse built last winter was removed and stored back in the trees until the coming winter.

EL MORRO (CONT.)

During the month a cabinet was constructed adjoining the cabin to house cylinders of liquefied petroleum gas, and the Electrolux refrigerator sent us last fall was put into operation. This is a real blessing, for it means we can keep fresh foods during the hot weather. Last summer this was impossible, and we had to live mostly on canned foods.

Local schools closed last week, and the coming month will probably bring greatly increased visitor travel. We are ready for it, and if roads and weather remain good during the summer season, we should get quite an increase over last summer's travel.

*****SWM*****

We want to congratulate Bud on his article, "Romance of Emigrant Names at El Morro, which appears in the Supplement, beginning at page 451. He ran the story down and obtained permission to use it and it is a great story. There is an almost unlimited mine of such interest in those names on El Morro.

Some excitement was recently aroused for fear we had erased the name of Kit Carson in the erasures which took place some years ago. Of course, such an idea is preposterous. Vogt supervised the removal of those signatures in person and he would have taken off the name of Carson just as quickly as he would have taken off his own right leg. We may be quite sure that no name of consequence was removed from the rock during that clean-up.--F. P.

*****SWM*****

BANDELIER

By C. G. Harkins, custodian,
Box 669, Santa Fe, N. Mex.

Visitors this month, 1,087; total since October 1, 5,029.

WEATHER

Weather conditions have been ideal all month. Very little moisture has fallen; the forest is extremely dry, and our roads are quite rough and dusty from Pojuaque on the highway to the monument headquarters.

EQUIPMENT AND SUPPLIES

Considerable equipment has been received for the museum and it is looking more and more like we will have it in operation by June 1, if not before.

GUIDE SERVICE

Guide service has been offered all our visitors, but this time of

BANDELIER (CONT.)

of the year is an occasion for school picnics, and guiding a group of high school students is a problem. They scatter out and the guide may start out with 50, but by the time the Community House is reached, there are hardly 25 in the party, and when the trip is finished, he perhaps has one or two faithful souls, who are still with him. But they are all satisfied and seem to prefer guiding themselves to going with the regular guide.

MUSEUM SERVICE

Due to alterations to our cases in the museum the past month, no museum service has been offered. We expect to be prepared for visitors by June 1.

USE OF PARK FACILITIES BY THE PUBLIC

Travel has fallen away below the same month in 1937. No reason has been found for the drop in travel, other than the peculiarities of the traveling public.

Total travel for the month was 1,087 people in 234 cars--a decrease of 308 people for May, 1937. There were 40 states and 3 foreign countries represented. The ~~seven highest states~~ in number of visitors were as follows:

New Mexico-	- - - - -	516
California-	- - - - -	112
New York-	- - - - -	65
Illinois-	- - - - -	62
Texas-	- - - - -	57
Missouri-	- - - - -	45
Colorado-	- - - - -	38

Four visitors from France, Canada, and Wales.

TRAVEL STATISTICS

Total travel-	- - - - -	1,087
Museum trips-	- - - - -	2
Total guide time special-	- - - - -	700
Total guide time in the field-	- - - - -	7,600
Average time, field trip-	- - - - -	99.5
Total guide minutes-	- - - - -	7,660
Total contacts-	- - - - -	1,087
Total guide time in museum-	- - - - -	60
Special groups-	- - - - -	9
Average time, museum contact-	- - - - -	30
Total visitor time-	- - - - -	44,600

BANDELIER (CONT.)

WEATHER

Days clear- - - - -	4	Mean maximum- - - - -	65.23
Days cloudy - - - - -	-10	Mean minimum- - - - -	34.76
Days partly cloudy- - - - -	-16	Mean- - - - -	49.99
Maximum temperature - - -	-86	Range - - - - -	34.
Minimum temperature - - -	-24	Precipitation - - - - -	.84

Dust storms on the 27th and 28th.

Maximum temperature of 86° was reached on the 13th.

Minimum temperature of 24° was reached on the 7th.

USE OF PARK FACILITIES BY THE PUBLIC

Visitors of Prominence: 17 members of the senior class of the Tatum, New Mexico, High School, made a trip through the ruins, including the Ceremonial Cave.

Chief Evergreen Tree, a native of Cochiti Pueblo, now residing in Chicago, made a trip through the ruins, including the Ceremonial Cave. The Chief has appeared on the Columbia and National Broadcasting systems and also on the local radio station in Santa Fe. Bandelier National Monument has received considerable advertising through the lectures of Chief Evergreen Tree.

Paul A. F. Walters was an interested visitor during the month. Mr. Walters is president of the First National Bank in Santa Fe. He also worked on the excavation of the ruins of Tyuonyi in 1910 and 1911.

Park Service Visitors: The National Park Service Advisory Board, consisting of the following members, made a three-hour trip through the ruins on May 4:

Mrs. Renow Folk; Mr. Edward H. Abrahams, and Mrs. Abrahams; Mr. Ronald E. Lee; Harold Bryant; Mr. Richard Prunn; Dr. Herbert E. Bolton; Mr. John R. Nagel.

The Advisory Board members were accompanied by the following members of the Regional office staff: Mr. W. B. McDougall, W. R. Hogan, and Charles N. Gould.

Dorr G. Yeager and Mrs. Yeager, of the Western Museum Laboratories, and Mr. and Mrs. Charlie Steen arrived on May 9.

Mr. and Mrs. King and Mr. and Mrs. Steen returned to Coolidge, Arizona, the 21st, after spending almost two man months here on museum preparation.

Hillory A. Tolson, associate director and Milton J. McColm, acting

BANDELIER (CONT.)

assistant director.

Public Camps: The camp ground has been well patronized with school picnics and week-end visitors. One especially interesting visitor remained over night in the camp ground on the nineteenth. Dr. Francis W. Pennell, a world renowned botanist, and member of the Academy of Sciences at Philadelphia, Pennsylvania. Dr. and Mrs. Pennell and their son made a four-hour trip through the ruins.

PROTECTION

Fire Protection: On April 30th, a fire training school was held at Bandelier by Mr. Barrows, of Washington, D. C. The forenoon was spent on the fundamentals of organization, detection, and law enforcement. In the afternoon, a tool demonstration and inspection of tools, along with the general discussion of the type of tool best suited for this area was held. The final issue was the actual line construction of a dummy fire and a discussion of the good and bad points, shown. The work on a dummy fire varies considerably from the suppression of a real fire.

On May 22, a fire was reported at the upper crossing on Frijoles. This fire was evidently started by fishermen, as it was at the head of the trail and 3 cars were parked there. But the fire was on the Ramon Vigil Grant, administrated by the Soil Conservation Service. Complying with our agreement with the Soil Conservation Service, a crew was dispatched to the fire, and soon had it under control. A patrol was maintained all night on mop-up, and the following day the fire was completely out. The area burned consisted of a small amount of brush, grass, and down logs, totaling about one and one-half acres.

Following is a list of those attending the fire school mentioned above:

NAME	TITLE
1. Leo A. McClatchy	National Park Service Public Informant.
2. J. A. Rodriguez	Forest Service Ranger.
3. W. H. Wirt	National Park Service Regional Forester.
4. Elipio A. Maestas	Forest Service Fire Guard
5. A. L. Brubb	CCC, Park Service Foreman
6. Joe W. Eieler	SCS, Ramon Vigil Grant Range Rider
7. Eduardo Cano	CCC, Park Service Foreman
8. Joe Archuleta	CCC, Park Service Foreman
9. Aaron Roybal	CCC, Park Service Foreman
10. J. O. Anthony	CCC, Park Service Foreman
11. George N. Keller	Regional Office Ass't. Equip. Eng'r.
12. Lawrence A. Scheier	CCC, Park Service Foreman
13. H. B. Chase	CCC, Park Service Project Superintendent.
14. James M. Eden	CCC, Park Service Ass't. Proj. Sup't.

BANDELIER (CONT.)

15. James T. Fulton	CCC, Park Service	Foreman.
16. Frank E. Andrews	Forest Service	Supervisor.
17. Irvin Pat Murray	Forest Service	Ranger.
18. Joe D. Austin	SCS	Range Rider.
19. Perl Charles	Forest Service	Ass't. Supervisor.
20. L. W. Rogers	Forest Service	Ranger.
21. Bates Wilson	CCC, Park Service	Jr. Foreman.
22. Onofre Pacheco	CCC Camp SP-1-N	Leader.
23. W. H. Walling	SCS	Ass't. Forester.
24. Arthur J. Evans	Army	Contract Physician.
25. C. G. Harkins	National Park Service	Custodian.
26. A. R. Thompson	National Park Service	Forester.
27. H. Maier	National Park Service	Actg. Reg. Director.
28. L. H. Cook	National Park Service	Deputy Chief Forester.

*****SWM*****

Methods of handling visitors at Bandelier need some study and some overhauling. This month the reports show at one place 1,087 visitors and 1,087 contacts. Those are evidently not educational contacts as we are using the word, for the museum was closed practically all month to visitors and we cannot figure from Form SWM 16 over 313 persons who took the field trip with a guide.--F. P.

*****SWM*****

BANDELIER CCC

By H. B. Chase, project superintendent,
Box 669, Santa Fe, N. Mex.

During the month the major portion of the flagstone floors in the Lobby and Sales Room, Unit No. 2 of the Hotel Development, has been completed. All of the flooring in the patios adjoining the Lobby and Sales Room have been completed.

The first coat of plaster has been put on two rooms of the Employees' Dormitory.

All walls of the Operator's Residence, Unit No. 4 of the Hotel Development, have been finished to viga height and the vigas installed.

The power house was completed this month, with the exception of the purchase and installation of a large fuel tank, and the 25 K.W. power plant installed with connections to all existing power lines. We now have power in the Utility Area, Administration Area, and the Residential Section.

During the month the shop building in the Utility Area was decked, roofing felt laid, and asphalt mopped on. Also, this building has been plastered, the doors and windows installed, and a new concrete floor

poured, making it almost ready for use.

A large crew has been at work all month in the Rock Quarry, hewing and shaping building stones for use in the building construction and for use as flooring in the various buildings.

In addition to the regular project activities concerning this camp, a one day fire suppression school was held under the direction of a representative of the Forestry office in Washington. Details concerning the activities of the meeting are incorporated in the Custodian's report of this month.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian,
Moccasin, Arizona.

Visitors this month, 96; total since October 1, 1,041.

Yesterday I sat down to get this report off to you in the mail for that day and was just getting in the spirit of making up a good report when H. E. Rothrock, of the Branch of Education and Research, Washington, D. C., and Edwin D. McKee, Naturalist of Grand Canyon, dropped in on me. They were headed for Grand Canyon National Monument and missed the road by way of Bullrush and came on here. They were in such a hurry that they could only spare a minute or so. After making a rush trip through the fort, they were about to leave, but in our talk something was mentioned about the Sevier Fault that causes the spring to come up here, and interest was increased to the extent that Rothrock and McKee stayed with me until 11:30--nearly 2½ hours.

During this time we were discussing the possibility of the geological exhibit back on the hill showing the rock formation and points of interest--this to be worked in with a nature trail that I have been thinking of for some time. While we were doing this, Al Kuehl came in and with his aid and suggestions, some plans and notes were made which will be worked up and submitted as a possible CCC project.

After Rothrock and McKee had continued on their way, Kuehl and I went to work on the monument problems and discussed how things were getting along.

Sites which I had spotted for the pit toilets were checked and found to be OK. But the materials should have been native lumber instead of the imported, as it has been found that our native lumber lasts as well, if not better, than any of the imported when left out in the weather, and is about 50 per cent cheaper.

A new design was made up for the fire places, still using the rock.

PIPE SPRING (CONT.)

But instead of several small ones, one large one on each side and at the back should be installed. I think this will be more attractive if we can find the right kind of rock.

The water system and materials were checked with the new proposed location of the residence. There will also be some change in the pipe lines. So we won't start on this project until further checking is made.

Some planting of trees and native shrubs was suggested by Kuehl, using the ball system of moving them.

The sign, or bulletin board, did not meet with Al's approval, and he is going to design another to put in it's place.

After discussing the conditions of the monument in connection with the camp and things in general, Al left for the North Rim of the Grand Canyon at 1:30 and left me so unsettled in my mind that I could not get settled down to work on the report till today.

So if this report is nothing but a jumbled mess, it will be due to the unexpected visit of Kuehl, Rothrock, and McGee, though I am glad they came in and spent the time with me. They gave me so much to think about that I could not get my mind on the report.

Our travel for the month has been about the same as for the month of April, though my contact with visitors is much lower, due to the fact that the new CCC boys that came in during April made up a large part of the April count. This month there were none, so my figures are of the normal local and visitor travel

There were three campers this month--two on the 27th and one on the 10th. We have 48 signatures on the register, but about 50 per cent of these were from the camp--boys who had not signed the register before and wanted their names on the record.

Following are the visitor statistics for the month:

Guided Visitors		Unguided and Users of the Monument.	
Visitors	42	Visitors	52
Parties	27	Parties	13
Time, visitors	1,036	Time, visitors	2,230
Average in party	1.6	Average in party	4.
Average time of party (minutes)	38	Average time of party (Min.)	171.5
Per cent of contact made	40		

The high time spent on the monument by the unguided visitors is due to the three campers.

PIPE SPRING (CONT.)

CCC ACTIVITIES

May 16, four boys, with the Dodge truck, started to work hauling dirt in the wash. They have been busy at this project since then with the exception of about one-half day when I had them dig the pits for the two toilets and cut a few dry weeds.

The materials for the toilets were delivered except the seats. These are being ordered out of Pasadena, and will be in the first part of next month. As I could not get a carpenter from the CCC, I am doing the work with one of the boys as a helper. I find it is going to be an up-hill business trying to keep the boy at work and tend to the other things, as well as show the visitors about.

The balance of the piping materials are being purchased with the May allotment. This will complete all materials for our approved projects.

PERSONAL

Mrs. Heaton has been suffering the past week with a bad cold in the head, also some of the children, but they are beginning to get back to normal again now.

I have enjoyed my work but don't seem to get on as fast as I would like to and get things finished. It seems that there are so many small jobs that come up each day to take one's time that the large jobs are put off and are slow in getting finished. But nothing to do but keep hammering away the best one can.

Weather for May: We have had some very unusual weather for May. The fore part was just like any spring, with hot and cold days sprinkled with high winds. On the night of the 6th the north country slipped down and gave us a taste of winter, again freezing most of the fruit and for the next two weeks we had snow, hail, and a lot of **rain**, all of which made it just too cold for anything to grow. The frost killed all the leaves on the locust trees, a lot of the flowers, and especially the cactus, from which I had hoped to gather some seed this season.

It has been reported that we have had as much moisture fall since January 1 as we usually get during an entire normal year. For this we are all thankful.

Days clear, 10; Partly cloudy, 7; Cloudy and stormy, 12.

BIRD NOTES

I have been rather successful in trapping the Gambel Sparrow this month, but very few of any other varieties have been caught; although I have added to my list the Green-tailed Towhee, Long-tailed Chat, and the House Finch since last month.

PIPE SPRING (CONT.)

My record for the month is as follows:

<u>New Birds Banded</u>	<u>May</u>	<u>Previous</u>	<u>Total</u>
Gambel Sparrow	98	366	464
Green-tailed Towhee	4		4
Long-tailed Chat	2		2
House Finch	1	2	3
Fly Catchers	2		2
<u>Repeats</u>			
Gambel Sparrow	98	387	485
Song Sparrow	4	45	49
Green-tailed Towhee	1		1

A number of birds are nesting on the monument, but I am a bit fearful that the nests will be disturbed if the boys find them. For they just can't seem to leave the wild life alone; they either want to kill it or catch it and make pets of it.

Here I would like to make a plea that something be done to make the camp officers of both Army and CCC understand that the CCC stands for Civilian Conservation Corps, with the Conservation being underlined--that the word means the conserving of the wild life and trees, flowers, nature as it is, as much as, if not more than, the building of dams, fences, and roads--and that this conservation be carried over to the boys.

TRAVEL

On May 12 I left the monument at 4:00 p. m. in the pick-up to go to Cedar City, Utah, to get the study skin case sent to Pipe Spring by the Berkeley office. I went by way of the desert and had so much gas line trouble that it was 9:00 p. m. when I got in to Zion. Stopped there for the night and the next morning took the fuel pump gas line off and found my trouble, cleaned it up, and left Zion at 8:00 a. m., arriving in Cedar City at 9:45 a. m., loaded the case, and left Cedar City at 10:00 a. m., arriving in Zion at 11:30 a. m. Spent an hour or so visiting some of the park rangers there, seeing the canyon again. Leaving Zion about 2:30, I arrived at the monument at 4:15 p. m.

I took one day annual leave on the 3rd when I attended the monthly Scout meeting in Provo.

NEW EQUIPMENT

One study skin case, from Berkeley, California; one new axe; one $\frac{1}{4}$ -inch bit; one shovel handle were added to the monument equipment this month.

*****SWM*****

PIPE SPRING (CONT.)

Leonard doesn't emphasize the point as much as we would like to when he interested a man who hadn't a minute to spare and kept him about two and a half hours. With as many different lines of interest as the average monument has, we should be able to interest anyone, from a preacher to a prize fighter in our monument. If we can't do it, we must have used the wrong line of approach.--F. P.

*****SWM*****

MONTEZUMA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 789; total since October 1, 5,184.

VISITOR STATISTICS

Cars- - - - -	-236	Total States- - - - -	30
Horseback Riders- - - - -	11	Foreign Countries - - - - -	5
Pedestrians - - - - -	17		

<u>Field Trips</u> - - - - -	-201		
Attended- - - - -	585	Time (minutes)- - - - -	8,599
Average attended- - - - -	2.91	Average time (minutes)- - - - -	42.78

<u>Museum Talks</u> - - - - -	-164		
Attended- - - - -	495	Time (minutes)- - - - -	2,465
Average attended- - - - -	3.01	Average time (minutes)- - - - -	15.03
Unattended- - - - -	139	Total Contact - - - - -	1,080
Per cent Contact- - - - -	136		

SPECIAL VISITORS

Park Service: April 26 - M. F. Christiansen, Regional Recreational Planner, from the Santa Fe office, was in.

April 29 - J. H. Haile, Jr., CCC Inspector, was in.

May 3 - David and Courtney Jones were in, en route to Wupatki for the season. We showed them the best Indian ruin in the United States, and had a very enjoyable visit. Incidentally, the custodian learned something, which is always a help.

May 6 - Al Bicknell and Gene Stonehocker arrived about 2:00 P.X. in the morning, bringing up a government truck for use on the road job.

May 8 - A. C. Kuehl, associate landscape architect, and J. H. Tovrea, assistant engineer, arrived and went over future development plans.

May 23 - J. H. Tovrea arrived again to complete some survey work.

Newsworthy Visitors: April 24 - Major General and Mrs. L. H. Bash, War Department, Washington, D. C., were very interested visitors; A. B. Harris, resident engineer, U. S. Geological Survey, paid a visit to the monument.

MONTEZUMA CASTLE (CONT.)

April 28 - Mr. and Mrs. Fred Gibson, of the Boyce-Thompson Southwest Arboretum, were visitors. Unfortunately for the custodian, they arrived on his day off, and he only saw their names on the register book.

April 30 - Miss Lucille La Verne and her company, all members of the case of the stage play "Sunup", were visitors.

May 5 - Horace Muscott, in charge of a General Land Office field party doing work in this district, arrived.

May 12 - The Palo Verde Ranch School for Boys was in for a Castle visit and picnic with nine boys.

May 17 - Mr. D. A. Holm, geologist for the State Land Department, was an interested visitor.

WEATHER AND ROADS

Precipitation- - - - -	.02	Minimum temperature- - - - -	33
Days cloudy- - - - -	-5	Mean maximum - - - - -	81.96
Days partly cloudy - - - - -	-6	Mean minimum - - - - -	46.66
Maximum temperature- - - - -	-102		

Weather has been very dry and **dusty**, with a great deal of wind for this season. We constantly receive heartfelt complaints about the rough and corrugated roads in this valley.

The Apache Trail is in pretty good condition. The road to Flagstaff via Stoneman Lake is in fair condition save for about 15 miles between Stoneman Lake and **Flagstaff**. The Oak Creek Canyon Road is still undergoing repairs where the flood of last March undercut sections of it, and where landslides are repeatedly occurring. This road is open and has been most of the time, but on the few days early in the month when it was closed for a few hours at a time, so much bad information got out about it that service stations in Flagstaff have discouraged people from using it at all. Of course, many push through anyway, and don't have any trouble, but a percentage of dubious ones don't take the route.

The road from here to Highway 79 via Cornville still has five or six miles that is under construction, and is very dusty and rough. Via Camp Verde to Cottonwood, the road is under almost constant maintenance, but the dry weather keeps it rough and corrugated most of the time.

To cap all this, the incoming visitor comes to the three quarters of a mile of entrance road which we are grading and oiling. Some of them turn back at this point, although not many. The road is passable, but requires slow driving.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

At this writing the grading of the entrance road is about 80% complete. Mr. Underhill expects to start oiling it on May 31. We gather that he is well pleased with the way the road job has come along, and that the result

MONTEZUMA CASTLE (CONT.)

should be as good as can be obtained with this grade of oil. . . .

A temporary incinerator pit was dug in the bottom of a sandy wash on the lower camp ground, and a sign made and installed there. This sign is one which may draw down **wrath** from high heaven or somewhere, but anyway, I think it is a good looking sign. Being not overly adept at painting letters, I traced them and hammered in roofing nails to make the letters. These nails are spaced a little apart, so you can't read the sign under eight feet, but over that distance the word "Garbage" shows up like a candle light in a window.

ACCESSIONS

On May 3 a 550-gallon underground storage tank for gasoline, and a gasoline pump were received.

On May 4 we received from the Western Museum Laboratories two new museum storage cases. Needless to say, we have stored all of an archaeological nature in those cases that we can, and for the first time can feel that perishables, such as textiles, are well protected.

For the entrance road project, two government dump trucks were brought here on loan, one from Bandelier and one from headquarters.

On May 23 Tov brought in a new Royal standard typewriter for this monument. This was a blessing which was not expected until next year, and after these years of using his own typewriter for business, the Custodian is grateful.

NATURE NOTES

Thirty-six new plants were collected and pressed for the herbarium collection. Twenty-five specimens in addition were sent to Headquarters for identification. Another collection, already identified, has been sent to Western Museum Laboratories for mounting on herbarium cards.

The grading project on the road caused the removal of a half dozen yucca baccata (?), and these we transplanted in the yard to enhance the beginning botanical garden. A half dozen other plants, resembling a sensitive plant, not identified as yet, were also transplanted.

On May 3 we saw our first tarantula of this season.

On May 9, around the borders of a deep pool across the creek which was drying up, and which contained a considerable population of carp, suckers, and perch, we saw the tracks of a large raccoon which had evidently been catering to the inner self. Also there were the tracks of a large heron.

MONTEZUMA CASTLE (CONT.)

As the creek has gone completely dry in front of the Castle and below, we have had occasion to rescue innumerable fish. This was done on time off or after hours. Since we have the assurance that Headquarters will, if possible, provide us with an aquarium for the museum this fiscal year, we took advantage of the drying pools to stock our personal aquarium with as many different varieties of local fish as were available, so as to learn as much of their food and life habits as would be necessary to keep them alive later in the museum. All of the native fish except the Gila Trout, or Bony Tail, thrive in aquaria. If we keep these latter alive, we will have to have running water through the aquarium.

Tracks of some very large snakes have been seen in this immediate vicinity, although we have seen none of them yet. From the near district, we receive reports of numerous rattlesnakes, and some surveyors found a large Black Tailed Diamond Back a short distance south of our boundary.

On May 3 David Jones brought in a large Bullsnake which had been run over on the road a few miles south of here. It was in good condition, and I proceeded to stuff it. This was the second experiment in this line. The specimen did not turn out well enough to exhibit, but gave me enough education that I am confident we can exhibit the next one.

Coyotes, who usually howl at night, broke into a drawn out daylight symphony on May 21.

GENERAL

While trip time increased, museum time decreased to a disappointing degree. However, our per cent contact rose 19 per cent, which is better than no raise at all.

We are having droves of picnickers of late, but very few campers, which is surprising. Ordinarily late evening would bring in the experienced tourist who would wish to camp, but not so this month.

It should be stated that the General Land Office is doing our boundary survey at this time, along with the survey of several unsurveyed sections in this district.

Recently we wrote in to Washington, D. C., and asked for all of the publications to date of the Project Training Series. There are ten so far, and their titles are as follows: No. 1 "The 'Why' of Block and Tackle", No. 2 "Outline of Elementary Course in Forestry", No. 3 "Carpentry Joints and Splices", No. 4 "Concrete", No. 5 "Brick and Stone Work", No. 6 "Landscape Conservation", No. 7 "Construction of Trails", No. 8 "Lumber", No. 9, "Signs and Markers", No. 10 "Construction of Relief Models". We think these are so useful and practical that the list is included in case somebody might see it and want some of the publications. Knowing some of the things in these books helps offset some

MONTEZUMA CASTLE (CONT.)

of the lack in practical training of men fresh out of college.

Follows a quote from Ranger Ed Alberts: "Among the problems facing rangers is that of maintaining a straight face in the face of certain slips of the language on the part of visitors. An instance of this occurred not long ago on the parapet of Montezuma Castle, from which point the view of the Verde Valley frequently incites spectators to give vent to expressions of admiration, etc. One rather interested visitor, a Los Angeles cop, after viewing the mountains and valley for some time, drinking in the view and the atmosphere of the place, turned and with a rapt air expressed himself as follows: 'You know, this country out here positively enhances me!' Which expression, it seems to some of us, is worthy of preservation and filing in the annals of the Boners of the year".

*****SWM*****

I think we have no complaint on Earl's 136 per cent contact and when you consider those ladders and that climb into the Castle, I think he is doing as well at 136 per cent as Casa Grande is at 173 per cent or Aztec is at 171 per cent. Tonto and Montezuma Castle cannot be expected to come up to the records of Casa Grande and Aztec because the heart cases, aged and crippled cannot be expected to make the field trips in these two monuments.--F. P.

*****SWM*****

BIRD NOTES

By Betty Jackson.

Birds seen at Montezuma Castle this month were:

Coot	Black Phoebe
Mourning Dove	Say Phoebe
House Finch	Gambel Quail
Red-shafted Flicker	Road Runner
Ash-throated Flycatcher	White-rumped Shrike
Cooper Hawk	Gambel Sparrow
Western Sparrow Hawk	Western Lark Sparrow
Green Heron	Cliff Swallow
Treganza Blue Heron	Hepatic Tanager
Black-chinned Hummingbird	Western Tanager
Arkansas Kingbird	Least Vireo (?)
Cassin Kingbird	Audubon Warbler
Kill Deer	Pileolated Warbler
American Merganser	Rocky Mt. Orange-crowned Warbler (?)
Western Mockingbird	Sonora Yellow Warbler
Arizona Hooded Oriole	Baird Bewick Wren
Canyon Wren	

BIRDS AT MONTEZUMA CASTLE (CONT.)

I don't know what has become of the Cardinals this month. I haven't seen or heard them since the last report went in. Maybe they are sensitive to noise, and didn't like the blasting and the roaring of trucks.

The other birds don't seem to mind, though the Mergansers, for instance, play around in the morning till the trucks get here, and then come back at night when they've gone. There's a regular saga about them this month:

May 2. Norman saw one lone baby Merganser on the hole below the Castle.

May 3. Same baby still alone. Norman moved him to the hole by the tent, where his mother soon found him.

May 5. Ed saw a whole family of Mergansers when he woke up, but wasn't sure it was not a dream.

May 7. Mama and ten baby Mergansers were seen, so Ed wasn't dreaming.

May 13 to 24 inclusive: Ed or Earl or I saw Mergansers in the mornings, two or three times at evening. Ed's observations are interesting. Noon of the 13th he came up to say that Mama Merganser (hereafter M.M.) and six young ones were spread out in a string across the creek, with M.M. on the other side. Something startled them and "they got up and ran on the water, making quite a splash, and very good speed. This was all accompanied by considerable honking, on the part of some of them at least."

On the 21st he said M.M. was giving the babies a lesson in diving. She sat by and watched while "they dove more or less in unison, as if at some signal."

This morning, the 24th, he came up with the word that one of the little ones had caught a fish, which stuck out of his mouth and tempted the others to fight for it. M.M. was not there.

On the 12th, Earl and I were spending our day off up the creek, looking for fish for our goldfish bowl. Just at the old north boundary I saw a black Phoebe get away from the cliff in that sneaking manner that usually means she's leaving her nest. Earl waited while I hunted in all the crevices. Finally I was giving up, remarking that the Phoebes were smarter than I was, when I saw a little cup-shaped extension of the rock, right at eye level, that I'd overlooked maybe ten times. It was a perfect piece of building, matching the rock perfectly, and making no shadows that would make it visible. There were two babies there, without even any fuzz, and one egg still unhatched.

BIRDS AT MONTEZUMA CASTLE (CONT.)

We got away as fast as possible then so Mrs. Phoebe could come back, and we watched from a distance to make sure she did.

Last month I mentioned the disagreement in the Say Phoebe family. Well, she won. On the 19th she laid one egg in the old nest above our door. On the 21st she still had only one, but today there are four.

On the 19th we were saving fish from a drying up hole below the Castle when Mrs. Arizona Hooded Oriole went by. I followed her, and saw her nest, hung in the middle of a bunch of mistletoe high in a big sycamore. All you can see is the bottom of it.

On the 21st I saw the female Oriole that lives up the creek carrying home food, so I guess she has young ones already.

Just by the Castle bench, in one of the hackberries, I saw an Ash-throated Flycatcher that seemed slightly smaller than the ones I've seen there before - and he had a small round spot of white on his forehead above the eyes, and his crest ended more raggedly in back than they usually do. Is that a different specie?

I caught the Baird-Bewick Wren in the act of taking a worm home to his family that evening. I was apparently standing right in the center of his route, because he flew straight at me till he was about fifteen feet away, then saw me and made a hasty reversal of direction. I haven't yet found the nest.

The Kingbird nest over the syzygy is now bursting with young life. It keeps both parents busy all day feeding the young ones. I expect them to fly any day now.

By the way, in hunting that Rocky Mountain Orange-crowned Warbler today, I saw a young House Finch in a mesquite. He was upset by my proximity, and fluttered from twig to twig away from me. He finally made a brave attempt, and flew about ten feet into another tree, though he lost quite a lot of altitude.

I'm surprised to see the quail still around. It seems to me that last year at this time they were all surreptitiously laying eggs under the brush, and keeping as much out of sight as possible.

The Western (or Louisiana) Tanager may decide to nest with us this year. I think there are two pairs, and they've been here a month now.

I got a good look at the "Sparrow Sp." of last month, and he's a Western Lark Sparrow, I'm sure. There are still lots of them around.

*****SWM*****

HEADQUARTERS

ACTIVITIES OF THE GENERAL MECHANIC

Other than servicing and upkeep of the motor equipment here at headquarters, the work of the mechanic is as follows: cranked and shipped motor test set to Bandelier; finished motor test set at motor and installed same in Custodian's office; replaced burning elements on Soule's electric range; received and put into service a new motor-generator type of battery charger.

One morning's work was devoted to opening up the door of the women's rest room--one of our visitors on the day of May 22 having been at some pains to snap the night-latch on the door, after painstakingly filling the key-hole with dirt.

One trip to Montezuma Castle to deliver truck USDI #8116 for use in road construction; four trips to SP-11-A, for the purpose of delivering CCC equipment to Headquarters; one trip to Phoenix to get the battery charger.

New equipment received at headquarters shop this month consists of one motor-generator type battery charger. Equipment sent out--motor test set.

*****SWM*****

BRANCH OF EDUCATION By Dale S. King, park naturalist.

Museum problems in the field and normal headquarters routine occupied the major portion of the time of the naturalist staff during the month of May. Park Naturalist King spent 16 days on museum preparation and installation at Bandelier National Monument, and another 11 days in travel, a portion of which was spent accompanying members of the National Park Service Advisory Board, members of the Washington office on various trips throughout the Southwestern Monuments. Junior archaeologist Steen was in the field for 12 days with Acting Chief Don G. Peckler of the Western Museum Laboratories and also spent 10 days on the Bandelier museum. Junior Naturalist Natt M. Dodge was in the office for the whole month except for a $3\frac{1}{2}$ -day patrol of Organ Pipe Cactus National Monument. CCC Enrollee Victor Scholz was on duty at the headquarters naturalist office all the month.

Following is a resume of the time devoted by members of the staff to various projects:

BRANCH OF EDUCATION (CONT.)

	King - Steen - Dodge - CCC		
	Days		
<u>General Office Overhead</u>			
Correspondence (133 letters)	1/2	4	
Conferences and discussions			
With Headquarters Staff.		1/2	
With visiting scientists and technicians .			
With NPS personnel		1	
Library (file, issue publications, etc.) . .	1/2	1/4	
Reports			
Compiling and processing monthly reports .		8-1/2	9
To Washington or Region III offices. . . .		1/2	
Miscellaneous reports and memoranda. . . .		1/4	
Publicity			
Prepare info. and publ. material		1/2	1-1/2
Check Region III publicity releases. . . .			
Miscellaneous			
Construction (Painting, carpentry, etc.) .			1/4
Wrap and ship requested material		1/4	
Clean-up and maintenance		1/4	1/2
Assistance to other departments.			4
<u>Research and Education</u>			
<u>Public Contact</u>			
Prepare and deliver outside talks.	1/4		
Relief guide duty at monuments			
Office visitors (informational).		1/2	
Museum and Nature trails			
Preparation and installation	16	10	
Acquire equipment and supplies			
Planning		1-1/2	
Arboretum, planning, planting, maintenance			3-1/2
Visual Education			
Slide and motion picture library work. . .			
Filing prints and negatives.			
Taking and processing photographs.		2	
Miscellaneous			
Bird banding and observation recording . .		1	3-1/4
CCC side camp educational program		1	
Ruins stabilization proj. administration .			
Antiquities program administration		1/2	
Mobile Unit.			
Southwestern Monuments Association			
<u>Field Work</u>			
Field trips.	11	12	
Organ Pipe Patrol.			3-1/2
<u>Leave</u>			
Annual	1		

BRANCH OF EDUCATION (CONT.)

<u>Leave (Cont.)</u>	<u>King - Steen - Dodge - CCC</u>			
	<u>Days</u>			
Sick	0	0	0	0
TOTAL FOR THE MONTH	26	26-3/4	24	22

HEADQUARTERS VISITORS

Engineer Underwood; Dr. McDougall; Ranger Roderick, of Carlsbad Caverns National Park; T. Onstott; Dorr G. Yeager; Ward Yeager; W. Wirt; Frank Brockman, of Mount Ranier National Park; Camp Superintendent Parker, of NM-5-A; Frank Chase; Project Superintendent William Stevenson.

SOUTHWESTERN MONUMENTS LOAN LIBRARY

Loan and return records were kept up to date, but accessioning and cataloging operations are in bad shape pending the arrival of Temporary Rangerette Gertrude Hill, who is expected to report for duty in the library June 2.

Library accessions for May were:

Periodicals- - - - -	-28
Reports- - - - -	-27
Maps - - - - -	1
Books- - - - -	-47
Pamphlets- - - - -	-25

PUBLICITY

Many requests for information and pictures were filled.

Material **processed** during May included: 1,000 re-runs of Chiricahua informational folder; 100 Special Report No. 23, "Romance of Emigrant Names at El Morro"; 500 bird banding record cards.

PUBLIC CONTACT

On May 4, 1938, Junior Naturalist Dodge gave a talk to the Indian 4-H Club of Sacaton. The talk was accompanied by a showing of Mr. Dodge's movies. Attendance, 17.

On May 6, Junior Archeologist Charlie Steen gave a talk before 80 enrollees at the Chiricahua National Monument. Time: 4.5 minutes.

MUSEUMS

Some assistance was given to Custodian Jackson at Montezuma Castle in his program of installing a sectioned ant hill in the museum.

BRANCH OF EDUCATION (CONT.)

Headquarters accessions during the month were: a coral snake, a scorpion, herbarium cards and folders, and book mailing cartons.

By far the most important project of the month was the museum preparation and installation accomplished at Bandelier National Monument. In all, 18 cases received quite a little work, and the whole case arrangement was straightened out, ready for the entire temporary installation. The museum is far from being ready to show to visitors, but one more short field trip may complete the temporary installation, if certain gaps can be filled by the Western Museum Laboratories or by a cooperating Government agency.

The following is a rough summary of work accomplished by King and Steen while at Bandelier:

Backgrounds made:-	2
Backs covered with monkscloth:-	20
Exhibit bases made:-	4
Shelves and brackets installed:-	21
Exhibits altered to fit proper positions:-	28
Title panels prepared and affixed:-	2
Exhibits prepared and affixed:-	52
Exhibits affixed:-	55
Pieces of pottery repaired:-	9
Finish moulding installed in cases:-	6
Auxiliary wiring installed in cases:-	1

The Bandelier relief model approximately 90 per cent complete. This includes almost all of the rough painting, but lettering and finishing touches are yet to be done.

VISUAL EDUCATION

Arrangements were made with the Recreational Demonstration project to purchase dark room equipment for the White Sands photographic laboratory.

Various photographs were sent to organizations which requested them from the headquarters photographic library.

Two ancient photographs of the Tonto cliff dwellings were sent to the Western Museum Laboratories for copying.

Arrangements were made for the purchase of a large view camera which will supply a long felt need in the Southwestern Monuments.

MISCELLANEOUS

The branch of education was very pleased to note that a bird banding station is to be operated at Chaco Canyon National Monument by Carolie

BRANCH OF EDUCATION (CONT.)

McKinney, wife of the custodian there.

The bird banding program slackened even more due to the coming of hot weather, but the following table shows that activity did not entirely cease:

<u>Species</u>	<u>New</u>	<u>Repeat</u>	<u>Return</u>
Cardinal, Arizona.	1	0	0
Dove, Western Mourning	8	1	1
Finch, House	3	0	0
Hawk, Western Redtail.	1	0	0
Quail, Gambel.	3	39	4
Thrasher, Bendire.	3	0	0
Thrasher, Crissal.	2	5	0
Towhee, Green-tailed	1	0	0
Verdin, Arizona.	7	0	0
Wren, Cactus	3	0	0
TOTAL	32	45	5

Total birds handled during month, 82.

Junior Naturalist Matt N. Dodge made a three and one-half day patrol of Organ Pipe Cactus National Monument, particularly watching for signs of bighorn sheep poaching, and accumulated quite valuable information on the trip.

CASA GRANDE SIDE CAMP EDUCATIONAL PROGRAM

Classes were held in the following subjects: Literacy; Know the Birds; Indians, Past and Present; Photography; Shorthand; Conversational Spanish; Conservation; Typing; Building Construction; and Auto Mechanics.

A total of $116\frac{1}{2}$ man hours was devoted to class work during the month. This teaching load was carried by one person from the technical staff and seven from National Park Service headquarters personnel.

We are proud to report that all enrollees in camp are enrolled in the class work.

FIELD TRIPS

While at Bandelier, Park Naturalist King was detailed to attend a meeting of delegates from various Southwestern museums at the University of New Mexico, Albuquerque, New Mexico. The meeting resulted in workable plans for an informal organization which, it is hoped, will act as a clearing house for all museums interested in the Southwest. While in Albuquerque, King attended one-half day of the A.A.A.S. meetings in anthropology, but this was done on annual leave.

BRANCH OF EDUCATION (CONT.)

On May 9, King and Steen met Mr. and Mrs. Edmund H. Abrahams, and Mrs. Ann Folk, of the National Park Service Advisory Board, in Albuquerque, and accompanied the Board members through Petrified Forest to Grand Canyon National Park. King and Steen returned to Bandelier National Monument May 12. King also visited Taos Pueblo May 21 at the request of Assistant Director Hillory A. Tolson, and then returned to headquarters May 24, VIA White Sands and Chiricahua National Monuments. Steen returned to headquarters May 21.

*****SWM*****

VISITOR STATISTICS AND EDUCATIONAL CONTACTS

By the Boss

As nearly as we can get at the total, we had about 22,649 visitors last month, which checks against 21,463 last year, 22,682 in 1936, and 10,997 in 1935.

On the face of it we show a slight gain over last year, but when we study the figures we find this is not due to an increase in travel, but to an increase in reports. In other words, we are reporting about 2,000 visitors from monuments which made no report last year. The more we study the figures, the more convinced we are that there are not so many people visiting our monuments this year as we had last. Of course, this is nothing to weep about if the decrease in visitors fell at the right monuments where we don't want so many visitors.

We have now had 159,701 visitors thus far in the visitor year as against 134,714 for the same period last year. This is an increase, thus far in the visitor year, of 24,987 visitors.

With the 22,649 visitors, we made 16,032 contacts, 70.7 per cent. These contacts were in the form of 1,519 field trips and 804 museum talks. The number of field trips were practically the same as last month, when we had 1,591, and considerably more than last year when we had 1,256. The museum talks were below last month in number and just above the same month last year.

The average time of the field trip was up two minutes this month, being 46.2 minutes, and the average time of the museum talk was up half a minute to 23.9.

Casa Grande leads with 319 field trips and 232 museum talks. Theoretically, a guide takes his party through the ruins and then through the museum. Theoretically, we should have as many museum talks as we have field trips. Practically, it doesn't work out that way and

VISITOR STATISTICS FOR MAY, 1938
SOUTHWESTERN MONUMENTS

MONUMENT	EMPLOYEES		FIELD TRIPS				MUSEUM TALKS				Unattended	Total Informa- tional Contact	Total Travel	Per cent Con- tact
	Per.	Temp.	No.	Att'd	Time	Av. Att'd	Av. Time	No.	Att'd	Time	Av. Att'd	Av. Time		
Arches	1	--	--	--	--	--	--	--	--	--	--	--	170	
Aztec	2	--	211	1454	7791	6.8	36.9	202	1482	5375	7.3	26.6	207	2936
Bandelier	1	4	74	313	6770	4.2	94.4	2	10	60	5.0	30.	700	323
Canyon de Chelly	1	--	39	130	3820	3.3	97.9	--	--	--	--	--	63	130
Capulin Mountain	1	--	--	--	--	--	--	--	--	--	--	--	1500	--
Casa Grande	2	3	319	2232	11757	6.9	36.8	232	1983	5353	8.5	23.0	1122	4215
Chaco Canyon	1	--	50	351	3250	7.0	65.0	--	--	--	--	--	500	351
Chiricahua	1	3	101	599	4875	5.9	48.2	--	--	--	--	--	342	599
El Morro	1	--	28	105	1765	3.7	63.0	18	50	2370	2.8	131.7	8	155
Gila Cliff	--	--	--	--	--	--	--	--	--	--	--	--	10	--
Gran Quivira	1	--	65	279	5960	4.2	78.4	--	--	--	--	--	--	279
Hovenweep	--	--	--	--	--	--	--	--	--	--	--	--	100	--
Montezuma Castle	2	--	201	585	8599	2.9	42.8	164	495	2465	3.0	15.0	139	1080
Natural Bridges	1	--	10	20	1200	2.0	120.	--	--	--	--	--	--	20
Navajo	1	--	7	22	1050	3.1	170.	--	--	--	--	--	--	22
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	100	--
Pipe Spring	1	--	27	42	1036	1.6	38.0	--	--	--	--	--	52	42
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	26	--
Saguaro	--	--	--	--	--	--	--	--	--	--	--	--	1500	--
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tonto	--	1	52	174	2515	3.3	48.3	41	135	790	3.2	19.2	30	309
Tumacacori	2	--	220	899	6440	4.0	29.2	--	--	--	--	--	219	899
Walnut Canyon	1	--	59	321	1130	5.4	19.1	145	596	2840	4.1	19.5	482	671
White Sands	3	--	36	104	1680	2.9	46.0	--	--	--	--	--	3501	3951
Wupatki	1	--	20	50	655	2.5	36.4	--	--	--	--	--	134	50
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	60	--
TOTAL	24	11	1519	7680	70293	5.0	46.2	804	4751	19253	5.9	23.9	10795	16032
Last Month	23	12	1591	11243	70188	7.0	44.1	880	5360	19780	6.0	22.4	20074	15754
Last Year			1256	8413	56004	6.6	44.5	799	4492	15376	5.6	19.2		12872

VISITOR STATISTICS AND EDUCATIONAL CONTACTS (CONT.)

Casa Grande often shows the widest gap between the two. I wonder why this is? Aztec has 211 field trips and 202 museum talks which comes nearer to the theoretical perfection. Montezuma Castle has 201 field trips and 164 museum talks.

There are no wide departures from the average times for last month, but it is interesting to check back on the same month last year. Aztec is down 9 minutes on the average field trip this year. Casa Grande is up 16 minutes this year over last on the field trip. Montezuma Castle is up 13 minutes on the field trip this year. Pipe Spring is up 10 minutes. Tonto is down 2 minutes. Tumacacori is up 4 minutes. In the museum talk, Aztec averages about 3 minutes up this year; Casa Grande, about 3 minutes up; Montezuma Castle nearly 3 minutes down; Tonto up about 2 minutes. The indication seems to be that it is easier to change the field talks than the museum talks.

*****SWM*****

SOME CASA GRANDE VISITOR RECORDS

By the Boss.

We were able to slow down the visitors just a little during the month of May at Casa Grande. We held them, on the average, one and four-tenths minutes longer on the ruins trip and two and three-tenths longer on the museum trip--a gain of three and one-tenth minutes on the total trip. Part of this seems to be due to Egormayer who, due to other duties, averaged only 3.3 half trips per day for 18 days, but pulled the total time per trip up with his high average of 44.8 minutes on the field trip and 25.0 minutes on the museum trip.

One of the guides points out that Jones worked a couple of weeks in May as a married man and, with his head in the clouds, let his field time slide down four minutes and his museum time some six minutes. I am unable to say whether the cause and effect are properly connected, but the effect, at least, is properly stated.

Of great interest to those of us around headquarters who are watching these figures, is the fact that Coyle, with a heroic effort, picked up two minutes on his museum time and now leads Rodgers by .2 minute. They both picked up field time this month but Rodgers maintains his lead by half a minute.

Holt is a newer man on the job and has not yet settled into his stride. He dropped a minute on his museum time and gained a minute and a half on his field time. It will be noted in Table 2 that Holt handled the greatest number of parties during the month and the largest number of people on the field trip. Coyle handled the largest number of museum visitors for the month, with two working days less than Holt.

SOME CASA GRANDE VISITOR RECORDS (CONT.)

It is not to be supposed that these men were all working at the same time or on the same day, for such was not the case. Savage was transferred to the shop during the month, where word comes back through Gene that he is making good with a bang. Jones went up to his summer tour of duty at Wupatki after working only four days at Casa Grande. Eggermayer, the new permanent ranger at Casa Grande, worked 18 days. Bicknell, whose other duties keep him going from about seven in the morning to nine or ten at night, worked at guiding on nine days and he was then pinch-hitting at lunch hours or on peak loads such as Sunday.

The totals of Table 2 are interesting as showing the variation of the load through four months.

Table 3 is interesting in showing that the poorest days or days of lowest traffic pressure in April and May were Thursday and Friday, whereas I would have guessed Monday as the poorest day. The busiest day was Sunday, of course.

AVERAGE TRIP TIME

	RUINS				MUSEUM				TOTAL	
	MAY	APRIL	MARCH	MAY	APRIL	MARCH	MAY	APRIL	MARCH	
Rodgers-----	36.5	35.8	37.4	: 24.5	22.9	22.8	: 61.0	58.7	60.2	
Coyle-----	36.0	34.7	35.6	: 24.7	22.7	19.9	: 60.7	57.4	55.5	
Holt-----	34.1	32.6	----	: 19.2	20.2	----	: 53.3	52.8	----	
Savage-----	31.1	29.3	31.3	: 17.7	15.4	16.1	: 48.8	44.7	47.4	
Jones-----	37.3	41.4	45.1	: 17.0	23.3	24.6	: 54.3	64.7	69.7	
Egermayer---	44.8	----	----	: 25.0	----	----	: 69.8	----	----	
Bicknell----	40.9	54.9	50.1	: 33.2	30.6	30.8	: 74.1	85.5	80.9	
AVERAGE---	36.8	35.4	36.2	: 23.1	21.4	21.1	: 59.9	56.8	57.3	

--TABLE I--

	Days	No. Parties		Minutes		No. Visitors		Half trips per day
	Worked	Ruins	Museum	Ru.	Mu.	Ru.	Mu.	
Rodgers----	22	83	60	3036	1474	546	475	6.5
Coyle-----	20	72	47	2592	1163	510	525	6.0
Holt-----	22	92	71	3141	1366	661	510	7.4
Savage-----	5	23	16	717	284	209	199	7.8
Jones-----	4	6	3	224	51	22	6	2.3
Eggermayer--	18	33	26	1702	701	249	224	3.3
Bicknell---	9	10	9	409	299	57	50	2.1
TOTALS---	100	319	232	11757	5353	2232	1983	5.5
April--	113	357	242	12638	5201	3168	2716	5.3
March--	94	335	199	12159	4202	2995	2330	5.6
Feb.---	102	462	338	15573	6826	3953	3004	7.8

--TABLE II--

SOME CASA GRANDE VISITOR RECORDS (CONT.)

TRAFFIC PRESSURE

		Average number of half trips per day for days of week.	
		<u>May</u>	<u>April</u>
Sunday	- - - - -	35.8	31.4 - 23.0
Monday	- - - - -	14.0	13.5 - 17.6
Tuesday	- - - - -	16.6	19.5 - 11.9
Wednesday	- - - - -	17.0	13.0 - 11.2
Thursday	- - - - -	12.8	18.5 - 17.0
Friday	- - - - -	17.3	14.0 - 12.0
Saturday	- - - - -	16.8	18.4 - 17.6

--TABLE III--

*****SWM*****

PERSONNEL

By the Boss.

The Boss and Hugh had a grand trip over to White Sands during the month, primarily to meet Mr. Tolson, of the Washington office, and secondarily to go over some of the White Sands problems on the ground. It was a pleasure to see Mrs. Charles and Tom again. Margaret was visiting her home folks, but we had a good visit with Jim. Johnnie and his boys were putting the finishing strokes on Residence No. 2 and the administration and museum building and Skeeter was handling the office work of the RD in a very competent fashion.

We also met Randy and Jack Diehl at Alamogordo and went over some of our problems with them. Randy was just up after a case of flu and we wouldn't be surprised to hear that he went back to Santa Fe and to bed again. Flu is a tricky thing and ought to be humored, according to our doctor.

Somebody in Mr. Tolson's office is going to catch the bawl for routing him out of El Paso at two o'clock. We took him into the station at 1:10 to get his ticket approved and his baggage checked, to find that the train had gone at one o'clock. However, it worked out all right, for we all had dinner together that night and then he took a nine o'clock train while we pulled back up to Alamogordo.

Doc checked me over when I got home (420 miles the last day) and said I was all right and could go again any time I wanted to.

Then Hugh, after a day at the desk, went off into Northern Arizona and New Mexico to care for a number of field matters, returning on June 2.

Chris had a few days vacation up in the cool air of the Mogollon

PERSONNEL NOTES (CONT.)

Rim, but came home in time to meet the Brills.

Charlie Brill, from the Washington office, and Mrs. Brill, dropped in with us for the greater part of two days. We learned a lot more about filing systems and had a chance to tell Charlie how valuable we had found some of the kinks he had installed with us on a former trip, notably the system of yellows. This time we picked up a general suspension file idea which is going to prove a life saver. We will wish he could come oftener and stay longer.

The sick list last month contained Parke Soule and Doc Gipe. Parke is now a hundred per cent recovered and Doc is making good gains, but still has to take things easy.

Tov is having a little breathing spell in the office right now but takes off for the field next Monday and is away most of the month of June. Polly is feeling fine and looks like a million dollars.

Charlie and Mary Steen are settled down in their rented quarters in Coolidge.

Dale and Hortensia King have returned from a month of work on the Bandelier Museum and are settled down at headquarters for some weeks to come.

Natt and Hap Dodge and the kids visited Chiricahua, White Sands, Gran Quivira, and Bandelier. Hap and the kids go on into Colorado for a summer with the home folks, and Natt returns by way of some of the northern monuments.

Gertrude Hill came in to go to work on the library cataloging. There is plenty of work laid out for her for some time.

Gilbert and Jane Philp, who have been with us at headquarters for several weeks, have gone to the coast at this writing, called by sickness in the family. They are expected back in a few days and Gil will probably then go to Tumacacori.

Ted Cronyn was in the other day saying 'Howdy' to everybody on his day off from Tumacacori.

Al Bicknell made a trip with a truck to Berkeley to bring in the remainder of the material for the Tumacacori museum. Dorr and his boys scared up another truck and two experts so Al made a pretty good haul, bringing home not only the materials but a couple of experts to install them. Al reports plenty of trouble and a rather hard trip.

Ira Goodwin took a civil service examination for typing and stenography and thinks he passed all right. We want to whangle him over to our

PERSONNEL NOTES (CONT.)

permanent roll in the next year.

Russell Landry is getting settled at his new job with us and beginning to feel at home.

Luis Castellum visited his home folks down at Tubac over the long week end caused by the holiday of the 30th.

Frank Morales is swinging into the CCC work in good shape. He will soon be ready to go up to our new camp at Flagstaff and take over the office work there.

Don Egermayer is working into the permanent ranger job at Casa Grande in good style. He and Ruth are living in one of the apartments at the Vah-Ki Inn, just around the corner from the Casa Grande Ruin.

Gene Stonehocker is a busy man these days. With the assistance of Mr. Chase and Teddy Savage, he is overhauling a lot of general equipment. Working on trucks and tractors at 110 degrees is great fun, if you like that sort of fun.

Teddy Baehr is taking time off from being general utility man to go to Hot Springs, Arkansas, for a little vacation.

Harry Reed has started his regular tour of duty as summer ranger at Arches National Monument.

Jimmie and Sallie Brewer are at Aztec where he has entered on duty as permanent ranger.

From his diary, we judge Johnwill Faris is batching. We see that Lena and the youngster have gone home for a little visit.

Paul Beaubien is beginning to feel like a pretty busy man, what with his CCC camp nearing completion and various technicians coming in to pass on his construction problems. It looks like we will be moving dirt and rocks at Walnut in the next forty-five days.

Davey and Corky have a main problem up at Wupatki of where to put the refrigerator. We note it runs through several entries of the diary. It was nip and tuck for a few days whether they or the refrigerator would occupy the quarters, for, like Bud and Betty, their quarters are so small that they have to go outside every time they want to change their minds.

Bud and Betty, by the way, are getting along fine according to reports just brought in by Hugh from the field.

Everett Underhill is about through with the entrance road job at

PERSONNEL NOTES (CONT.)

Montezuma Castle and says he is going to get through within the money and get a good job.

Bill Leicht reports a few more visitors and a little less weather at Navajo, so things are beginning to straighten out. Hugh comes in all pepped up with some experiences of Bud in short wave radio, and we think we have a way of putting Bill in touch with the rest of the world.

*****SWM*****



THE Supplement

S·M· MONTHLY REPORT

ROMANCE OF EMIGRANT NAMES — AT EL MORRO —

By Robert R. Budlong.

Among the hundreds of inscriptions to be found carved on El Morro Rock, are those of a number of emigrants to California who passed that way in 1858. One member of the particular party about which this is written left the following inscription: *

John Udell Age 63

July 8, 1858. First Emigrant.

(*See article on the founding of Fort Mohave by Art. Woodward in the "Fony Express and Courier", May, 1937, Volume 3, Number 12.--Ed.)

Another inscription reads:

Isaac T. Holland

July 8, 1858. From Mo.

First Emgt. Train.

Other names of members of this party are to be found, among them the following:

L. J. Rose. Iowa

July 7, 1858

Extracts from the Journal of John Udell, published in 1859 at Jefferson, Ohio, were sent Mr. E. Z. Vogt, Jr., by Mr. Charles Kelly of Salt Lake City in September, 1936, and these brief extracts are now in the official files at this monument.

During the past winter I was most fortunate in entering into correspondence with Mr. Leon John Rose of San Diego, California, whose father carved his name on the Rock July 7, 1858, as indicated above. To Mr. Rose I am deeply indebted for the following article, written by his father October 28, 1858, and describing what occurred to this party of emigrants on the banks of the Colorado River in that year. Mr. Rose expects shortly to publish a book entitled "Gringo Grandees" descriptive of his father's life, and we are looking forward with much interest to reading it.

This article makes a very valuable addition to the material being compiled on the names to be found upon El Morro Rock, and I know it will be found of absorbing interest to all who read it. Mr. Rose has very kindly given me permission to publish this document in the Southwestern Monuments Monthly Report. The article follows, exactly as sent to me:

ROMANCE OF EMIGRANT NAMES AT EL MORRO (CONT.)

AN ACCOUNT WRITTEN BY L. J. ROSE WHICH WAS SENT BACK TO THE NEWSPAPER IN KEOSAUQUA, IOWA, UPON HIS RETURN TO ALBUQUERQUE IN OCTOBER, 1858, AFTER HIS HARROWING EXPERIENCE WITH THE MOJAVES ON THE BANK OF THE COLORADO RIVER IN AUGUST OF THE SAME YEAR.

You may have heard of several parties of immigrants who started on Beale's route for California last spring, and possibly of their return from the Colorado on account of Indian troubles. I was in all of those troubles, and a plain statement of facts connected therewith may possibly be not uninteresting to yourself and readers.

The first company consisted of two parties: Joel Hedgpath, Thos. Hedgpath, G. Baily, Wright Baily, J. Holland Daily, John Udell, their families, and probably 18 hands, forming one party, who had with them 125 head of oxen and cows; 12 wagons, and 15 horses -- Messrs. Bentner, Alpha Brown, S. M. Jones, myself, and families, and 17 hands, the other party, with 247 head of cattle, and 21 horses and mules. We kept our stock separate until our troubles with the Indians began, although we traveled together and camped near each other.

We left Westport, Missouri, the first of May, and Albuquerque, New Mexico, the 30th of June, with E. M. Savedra, as a guide, who had been guide for Whipple and Beale. We got along reasonably well until we arrived at what, I think, Beale names Hemp-hill Spring (our guide calls it Peach Tree Spring) where we saw the first Indians on the route and they, by way of introduction, stole one mare and one mule. Three of the men went in pursuit, tracking them nearly for a day, and while going through a deep canyon were shot at with arrows by the Indians, but without being hurt. Night coming on, and their animals being tired out, they gave up the pursuit and got back to camp in the night, very hungry, thirsty, and tired. This according to Lieutenant Beale's report, is 112 miles this side of the Colorado. The next evening, near dusk, while under way, Savedra espied some Indians on the side of a mountain. After much coaxing by sign and speech he succeeded in prevailing on them to come down to us. They, finding that no harm was meant them, followed us to camp. While coming down, they kept up a continual rapid jabbering, and when near us would pat their breasts, saying "hanna," "hanna," "hanna," repeatedly. They also used the word "Mojaves." Savedra, who understands their language to some extent, said that they said they (the Cosninos) had our horses, and had taken them from the Mojaves, who had stolen them from us, and that they would bring them to us the next day. That they were good, or "hanna, hanna", and that the Mojaves were bad. We treated them kindly, gave them as much to eat as they wanted, wishing to have no trouble with them, and thinking that possibly they might return the horses, although we rather inclined to the belief that they themselves had stolen the horses, Savedra saying that the Mojaves never came out so far from their own country.

Next morning, about ten o'clock, word came up, sure enough, the Indians

were bringing the horses. Of course, everybody was surprised and in good humor. About eleven o'clock a.m., we got into Indian Springs, 91 miles this side of the Colorado, when about 25 Indians came up with the horses and gave them up to us. It was soon evident that they anticipated very extravagant rewards, all expecting shoes, clothing, and trinkets, besides some cattle. I gave each of the two a blanket, shirt, pants, knife, tobacco and some Indian trinkets, and the balance tobacco and some trinkets, also preparing an ample dinner for them, and again a supper. I also gave the two who had returned the horses a certificate that they had voluntarily returned them, and that I believed they had also stolen them. Many remained in camp with us that night, doubtless for the purpose of stealing, but the guard kept so sharp a lookout that they found no opportunity.

Next morning a new supply came in, numbering probably near 50, also claiming some reward, commencing with their jabbering as soon as in sight and keeping it up as long as breath would hold out, pointing out at the same time which way the horses had been taken when stolen, how they re-took them, how they fought -- wore out their moccasins running after them -- wanting shoes, etc., and, to our great relief, about eleven o'clock a. m. they all left. They were becoming very annoying, assigning as a reason that the Mojaves were pursuing them. I felt some little apprehension for the safety of the cattle, but as we expected to move camp about a mile as soon as we could eat dinner, no extra precaution was taken, and it would have been useless then. When we were hitching up we found some of our oxen missing and, on counting, found six of our cattle gone. Some of the men went in pursuit, and found four of them killed. From two the meat had all been cut, nothing but the carcass remaining; the other two the Indians had had only time to kill, and being apprised by their watchers of our men coming, had left them. It being near sun-down and the canyon becoming very narrow and rocky, the men thought it prudent to return, seeing nothing could be gained by pursuing, and not even seeing one Indian, but probably passing in thirty yards of many secreted among the rocks. From there to the Colorado we were continually harassed and shot at by them. Many of our horses and cattle were wounded, also one man whom I sent back from Savedras Spring, to let Mr. Brown know that there was but little water. He was shot with three arrows, and only after an illness of two months was able to walk or ride. But it would be tedious to narrate all the annoyances and, compared with what followed, petty troubles.

The 27th of August, about sunset, we reached the top of the last mountain between us and the Colorado. We had toiled two nights and days incessantly. Our animals without water, footsore and worn out; the weather had been hot. The men, too, were all worn out with incessant toil and nothing but the verdant valley with the Colorado meandering through it, looking in the distance like a brook, and the evening mountain breeze kept them in spirits and willing to encounter another night's toil. We halted and had supper, the first meal for the day, discussed the merits of green beans and corn, which we expected to eat when we got there; how long it would take to cross the river, and then, Oh then, only

ten days to St. Bernardino, California, and civilization. We gave one general hurrah and again rolled on expecting to reach the Colorado before daybreak. Some of the Mojave Indians here met us bringing a melon and a little corn which were greedily purchased. They asked us how many of us there were, and whether we expected to settle on the Colorado. (Rather an unusual question, I thought at the time.) We told our number, saying more were coming, and that we were going to California. They appeared very friendly all the way, showing the road and performing other service unasked during the night. Instead of getting there before morning, it was after 11 o'clock when we got to the edge of the woods, yet a mile from the river, and our oxen being completely exhausted, we had to unyoke and drive them to the water.

On nearing the river many Indians came out, and as the number increased, their manner changed to insolence and impudence. My wife and I were walking along the teams being unable to carry us. An Indian stepped between us asking many impertinent questions in bad English and Mexican, and laid his hand on her bosom and shoulder. I pushed him away and shook my head, assuming as pleasant a look as possible, which must have been a ghost of a smile, for my blood fairly boiled and nothing but the life of my wife and little ones prevented me giving him what he deserved. He merely laughed a big "ha, ha!"

By this time we had reached the wagons. Mr. Brown's wagon was probably a hundred yards from the others. Mr. Brown himself had gone to see to the watering of the animals and to bring water to the camp. The day was very hot -- the hottest I have experienced, and Mrs. Brown and children were very much in want of some to drink. I found them all in tears and begging the Indians to bring them some, at which they only laughed and told her if she would pull off her dress and give them that, they would give her some. She offered them various articles of more worth than it, but nothing else would answer. They also would take hold of her little boy saying that they were going to take him, and stood around laughing and talking in a very impudent manner, judging from their manners and actions and the little English they spoke.

I had the wagon hauled near the others, and Mr. Brown returning with water, they troubled her no more. Had they attacked us then, we would have been their easy victims, for there were not five persons awake in camp. The men were so exhausted that as soon as they reached camp they lay down under the trees, and fell into a heavy sleep, and amidst gnashing teeth and distorted faces around them, were still, in their dreams, driving oxen.

The Indians killed and drove off our cattle without much opposition, and when caught in the act would laugh and treat the matter as a very good, rich joke. They troubled themselves but little about us, and would cut up animals and cook them in sight of camp. But evening came at length, and the Indians started for their homes, leaving us in the enjoyment of

quiet and needful sleep.

Next morning, after a hearty breakfast, we moved camp to the river bank and all hands feeling refreshed got things in regular working order again. Some started in search of a place to cross the river, whilst others for better grass, in the finding of which they succeeded as well as could be wished and better than we had expected. A strict watch was kept over the animals and we lost nothing that day.

About noon one of the chiefs came to camp to pay us a visit. He had a number of his men with him. When told about his men stealing some of our cattle, he spoke to some of them, but evidently not very earnestly, and gave us but little satisfaction, only saying they would do so no more. He said but little, but was very attentive to all that was said or done and there was a cunning twinkle in his eye which I did not half like. He asked whether we were going to settle there and when told that we were going to California, he gave us a very searching look, as if not half believing it. I gave him presents which I had brought along for that purpose consisting of blankets, shirts, pants, knives, tobacco, beads, rings, bells, and looking-glasses, which he distributed among his warriors, and said we could now stay and cross the river when we pleased and none of his men would trouble or molest us. He was a stout, tall Indian, with a great deal of bluster and fuss about him. He was gaily rigged out in paint, feathers, bells, and gewgaws. I made him like presents, and he made like promises, harangued his warriors, all of whom, except a few, left.

About four o'clock p. m., we moved our camp down the river about a mile, where we expected to cross it, and found excellent grass, also plenty of cottonwood for constructing a camp.

Our new camp was a very pleasant one. Although the sun was very hot during the day, so much so that the horses were as wet with perspiration as if they had been in the river, yet we had a pleasant breeze from the river; the water was good and cool, and the animals were fairly "rolling in clover." The evening and night was cool and refreshing, and the next morning we felt as fresh and buoyant with hope as if we had never lost sleep nor had any trouble. But in the calm the storm was brewing. Only two Indians made their appearance; they looked around awhile and then left. About 10 o'clock a.m., we saw many Indians crossing the River, and we counted over 250 of them. Savedra said that the Indians acted suspiciously and I sent word to Mr. Brown to have the cattle herded near camp. Yet we had but little fear of an attack. I felt some little uneasiness on account of Mr. Bentner who was to come that morning from the mountains.

I will here explain how he came there. The first party, with Mr. Bentner of my party, had left their wagons in the mountains together with their families and most of their men, fearing that the animals

could not stand it to the Colorado and draw a load, and had driven their animals loose, while I had all my wagons, animals, and things at the river. They expected to recruit for a few days and then return with them for their wagons. Mr. Bentner having mules did not need so long a time for recruiting, and as we would cross the river before they could and would get some little start, and being of our company anyway, he felt anxious to be with us. I expected him early in the morning and his not coming, as I said before, made me uneasy, and I thought I would send back to the camp we had left and possibly we might find him and family there. Dinner being nearly ready, I postponed it until after the meal. While eating dinner, one Indian made his appearance. He looked around a little while and then left. One of our boys came in and said he had seen a good many Indians in the vicinity, and they had told him that a steamboat was coming up and pointed where the sun would be when the boat would land. There was quite an excitement in camp for a while, but we concluded that it was too good to be true. After dinner, two of my men left for the camp we had left the day previous to see if they could find Bentner.

About half an hour after the men had left, the Indians came running from every quarter, out of the brush, completely surrounding the camp, and attacked us. They came within 15 feet of our wagons and they evidently expected to find it easier work than they did, for I have no doubt they expected to massacre us. But we were well armed and the men that were in camp ready to receive them. A short time afterward, all of the men came in except two, whom I had sent to see if they could find Mr. Bentner and family; and some of the enemy being killed, they retired to a safe distance. They kept up a continued shooting of arrows for nearly two hours, and part of them having driven off all the stock except a few near the wagons, they all left. During this time, the two men had returned and reported of having found Miss Bentner killed, her clothes torn off and her face disfigured. They knew that it was unsafe for them to make any further search, and made for the camp. From this and the fact of an Indian from the other side of the river shaking some scalps at us, which he had fastened on a pole, we supposed that they had all been killed. Mr. Brown was also killed, dying in camp without a struggle. We buried him in the Colorado, and its waters will never close over a nobler or better man, for to know him was but to like him. Eleven more were wounded, who have all since recovered, or nearly so. There were about 25 men in the fight.

We held a consultation, and concluded, after discussing various plans, to return the way we had come. There were cattle enough left to pull one wagon, and two mules for the carriage. We loaded these with as much provision and clothing as the oxen and mules were able to pull, leaving the loads of five wagons, undisturbed, behind. We scarcely expected to make our retreat, yet every man felt disposed to sell his life as dearly as possible. We also feared that the families with the few men left in the mountains were all killed; but we made our way back undisturbed, and found them all safe. Out of nearly 400 head of cattle,

ROMANCE OF EMIGRANT NAMES AT EL MORRO (CONT.)

we saved 17 head, and out of 37 horses, probably ten. The cattle that were mine have all died on the road from the fact of their feet giving out in again having to go over the rocky road which had previously made their feet tender; but they were in good condition otherwise, and with a few day's rest at the Colorado and no rock on the other side (Savendra says there is none) would have been able to have gone on without difficulty.

We found, too, at the Colorado mountains, another party of immigrants from Iowa, and from the same county from whence I had come; in fact, old acquaintances to me consisting of Messrs. Caves, Jordan, Perkins and Davis with their families and about thirty men. They had been much troubled by the Cosninos Indians and in consequence had lost much stock. The joy in finding them was indescribable, for without their assistance I could not have gone ten miles further. They fortunately, too, had a large share of provisions which they very generously divided with us, but even with the assistance that they could render, it was a never-to-be-forgotten march back. Many wagons had to be left and in order to haul all the provisions, all the women and children, as well as the men, had to walk. On account of the heat of the day and the slowness of the cattle, and having to make certain distances to reach water, we had to travel mostly at night and at times night and day. A distance that we made in coming in a day now took us two and at times more. This was on account of the cattle's feet being sore and worn through by walking so long on rough rock. The Cosninos Indians troubled us all the way back, and a party of 15 men who had been sent ahead with the loose stock to Indian Spring, were there attacked, and had to fight half a day until we all came up to their relief. When some five miles yet from the spring a man came back who had gone ahead, but not with the first party, and reported that the first party had all been killed, that the Indians had their guns and were wearing their clothing, that they were herding the cattle around the spring and were evidently expecting to keep us away from the spring.

I shall never forget the consternation this created, but as we had to have water, there was no other alternative, and get it we must or die. When we got near enough we found the report a mistake, and a very joyous one it was, many shedding tears of joy in finding a son who they had supposed dead. They, too, were as glad as we for their situation was anything but pleasant. One of them was badly wounded with a ball, (the Indians having one rifle among them) and one with an arrow. Both have since recovered. To give some idea how fast we traveled, making every exertion, for the provisions of many were all gone and had to live on beef alone, and that, too, feverish and worn out so that it made everyone sick who ate it, it took me and others 18 days to make 91 miles. I could yet write by the day of new troubles and hardships we experienced, but this account is already getting too long.

At Indian Spring we found E. O. and T. O. Smith and train, both

gentlemen with warm hearts and, too, willing and determined ones to help. We are all indebted to them for many favors and acts of kindness. They divided their provisions to the last mouthful, and when that gave out, killed their cattle, hauled all the women and children, and lent their stock as long as there was any to lend. Part of us, with mule teams, have now reached Albuquerque where are as warm and kind hearts as beat in the world. The Americans and the officers of the army station here have done everything in their power to help us. They have even sent a load of supplies to meet us, and have sent two more loads to those back with Smith's train who are now expected in daily. May they never need assistance.

The lot of many is a very hard one. Some are old, who, with large families, unable to work, were going to California to a fortunate son; some honest, industrious farmers, who had what was to them an independency; some delicate in health expecting to improve it by the climate of California, but with a sufficiency, and all have lost their all, and are now living beggars, or on the bounty of kind people, in a strange land and among strangers.

You can publish this as it is, if you think it would be of any interest to your readers -- or parts, or none of it, as you may think best -- but if you do not publish it as it is, then be kind enough to send it to Hon. H. K. S. O'Melveny, Central City, Illinois. I have no time to revise it, and many corrections will have to be made, which I would do, were it not for my anxiety to get it off by this mail, which closes soon.

*****SWM*****

VOLCANOES AND NATIONAL MONUMENTS IN THE SOUTHWEST

BY CHARLES N. GOULD

INTRODUCTION

Seven of the national monuments in the Southwest are located in regions where volcanic rocks occupy the surface. Capulin, New Mexico, and Sunset Crater, Arizona, are both outstanding examples of extinct volcanoes, both being cinder cones with unbreached craters at the summit. Wheeler National Monument in Colorado, and Chiricahua in Arizona were created because of the existence of peculiar or unique erosion forms, carved by the agents of weathering in volcanic rocks. These four monuments were established almost entirely on account of their unusual geological and scenic features.

Bandelier and Gila Cliff Dwellings National Monuments in New Mexico,

VOLCANOES AND NATIONAL MONUMENTS IN THE SOUTHWEST (CONT.)

and Tonto National Monument in Arizona, are chiefly of archeological interest. They all contain caves in volcanic rocks within which the Old People built their dwellings.

All of these volcanic rocks reached the surface of the earth at a rather late date, geologically. Sunset Crater, which is believed to be one of the youngest volcanic cones in North America, has even been dated, by the tree-ring method, at less than 1,000 years. The next youngest is believed to be Capulin, which, though much older than Sunset, is still quite youthful, as geological time goes. Our best guess for the age of the Capulin Crater would be somewhere between 2,000 and 5,000 years.

Geologists have found that throughout the very long history of the earth there have been many periods of extreme volcanic activity. Rocks of volcanic origin occur in many places. During late Tertiary times, say 20,000 to 50,000 years ago, there occurred in the southwestern part of the United States several great periods of volcanic activity. Vast quantities of molten lava issued from numerous craters and crevices throughout the area and spread out over the surface, covering thousands of square miles. When this molten lava cooled, it usually formed a hard, black rock known as basalt. In other cases the material ejected from the volcano was ashes or cinders blown high in the air from such craters as Capulin and Sunset. This material was carried by the wind and finally settled to the ground. On being compacted and hardened, it forms tuff.

One of these large areas is in the San Juan Mountains of southwestern Colorado, where an area of more than 5,000 square miles is covered hundreds of feet deep with volcanic rock. Wheeler National Monument is located in the San Juan area.

Another area showing evidence of great volcanic activity is along the upper waters of the Gila and Salt rivers, including Mogollon Mountains in southwestern New Mexico and White Mountains in southeastern Arizona. Gila Cliff Dwellings and Tonto National Monument are in this area. A third area of volcanic rocks, which includes Capulin, is in northeastern New Mexico and southeastern Colorado.

Then there are many isolated groups or peaks of volcanic rocks, two of which contain the national monuments at Bandelier and Chiricahua.

CAPULIN

Capulin Mountain in northeastern New Mexico is an outstanding example of a cone built up by the eruption of a volcano. The material composing the cone is largely ashes, cinders, and small fragments of rock, chiefly olivine basalt. The mountain is typically cone-shaped, the slopes having the ordinary "angle of repose" of 30 to 35 degrees. This is so steep that when fragments of rock are broken loose by the action of rain and

VOLCANOES AND NATIONAL MONUMENTS IN THE SOUTHWEST (CONT.)

other agents of weathering, they roll down the mountainside.

The summit of the volcano is reached by a winding road one mile long, dug out of the side of the mountain. This road encircles the cone, starting on the west side at the base of the mountain, and passes around the south side of the cone gradually ascending the east and north slopes until it ends in a "turn around" or parking place for cars at an elevation of 8,000 feet above sea level, at a point about 1,000 feet immediately above the place where it starts.

From the summit of the volcano, a magnificent view can be obtained over this part of northeastern New Mexico. Three towns, Des Moines, Capulin and Folsom are in sight. To the west, beyond Raton, may be seen the snow on the Sangre de Cristo Mountains. To the north one can look into Colorado, and to the east as far as northwestern Oklahoma and Texas.

Geologists believe that, in late geological time, there occurred in this part of the United States a long period of volcanic activity. Volcanic rocks occur at many places east of the Front Range of the Rocky Mountains for a distance of several hundred miles north and south. The center of this activity seems to have been near Capulin in northeastern New Mexico.

From the top of Capulin, one can count scores of peaks, hills, plugs, stocks, and volcanic cones, with craters in various stages of erosions. Many of these peaks have received specific names, such as Rabbit Ear, Mt. Dora, Horseshoe, and Don Carlos.

The largest of these volcanic mountains is Sierra Grande which lies some ten miles southeast of Capulin. Sierra Grande is a vast extinct volcano ten to fifteen miles in diameter and standing something like 2,000 feet above the level of the plain. It is not a cinder cone like Capulin, but a lava cone built up by the hardening of hot molten lava.

To the west of Capulin, and between this volcano and Sangre de Cristo Mountains, there are several flat-topped mesas composed chiefly of black basaltic volcanic rock. The three largest of these are Barella, Raton, and Johnson Mesas. Fisher's Peak, south of Trinidad, is located on one of these mesas.

Geologists who have studied the problem believe that there were three, or possibly four, periods of volcanic activity in this area. The greater part of the material ejected from the volcanoes appears to have been in the form of lava which came out of the earth as hot, molten rock, flowed down the slopes, and finally cooled, forming basalt such as occurs at Sierra Grande and the three mesas mentioned above.

The following paragraph is quoted from Darton, Bulletin 794, pp. 64,

65, U. S. Geological Survey:

"The oldest flows are most on the higher mesas, and nearly all the younger lavas are on the lower lands. Some of the thicker mesas consist of a succession of flows separated by scoriaceous material. The oldest lavas, which are on Barilla Mesa and the west end of Johnson Mesa, are from 100 to 500 feet thick and are classed as olivine basalt. The lavas of the second period of eruption are closely similar to the older flows, but those of the later flows comprise basalt, dacite, and andesite, constituting Towndrow Peak, Hunter Mesa, Meloche Mesa, and Cunningham Butte. It is stated by Mertie that the lava flow of Mount Capulin is vesicular and glassy olivine basalt. Its cone, which is about 1,500 feet high and 1-1/2 miles in diameter, consists of fresh cinders and is the product of a very recent eruption on a gigantic scale. The walls of the crater in its top are 75 to 275 feet high."

Thus it will be noted that Capulin is not a lava cone, but a cinder cone. It probably represents the last volcanic activity in this region. Its present shape, that of a very perfect cinder cone with a crater at the summit, is due to the fact that it is of such recent origin, geologically, that there has not been time for the forces of erosion to remove the mountain mass. Given a few hundred thousand years, this volcano will succumb to the action of nature's forces and will be greatly reduced in size and shape. Eventually, it will be flattened out and lose its identity.

SUNSET CRATER

Sunset Crater is also a perfect example of a volcanic cone. It rises to a height of approximately 1,000 feet above its base and at the summit there is an unbreached crater 400 feet deep and a quarter of a mile in diameter. The sides of the cone are composed of fragments of volcanic rock which roll down the slope.

The name "Sunset" is from the vari-colored rocks near the summit where the color grades downward from the summit through different shades of yellow, orange, red, and brown into the black material of the lower slopes.

Sunset Crater is but one of a large number of somewhat similar extinct volcanic cones, large and small, which occupy an area of more than 1,000 square miles in the southern part of the Colorado Plateau region of northern Arizona. The outstanding cone is San Francisco Peak which dominates the landscape, rising 5,000 feet above the surrounding plain and 12,611 feet above sea level.

VOLCANOES AND NATIONAL MONUMENTS IN THE SOUTHWEST (CONT.)

Sunset Crater has the distinction of being one of the latest of the several cones in this general region to have been built by eruption of lava. The exact date cannot be determined but probably lies well within the last 1,000 years. One estimate of the time of eruption, made by the tree-ring method, is 880 A.D. It certainly occurred after the time when the region had been occupied by man, for it is known that the erupted material covered and destroyed numerous pit houses which had been constructed near by and occupied by primitive people.

In addition to the larger cone, there are several other points of interest on the monument, namely, an ice cave, several fumeroles, and "squeeze ups", numerous sink holes, the remains of a hot spring, several deep fissures, and other attendant volcanic phenomena.

A foot trail leads to the summit of the crater. It is best to allow at least a half day for the round trip for in the event that the interesting details of the mouth of the crater fails to hold one, there is the magnificent panorama of the Painted Desert, San Francisco Peaks, and the Bonito lava flow below with its many interesting features.

In many ways Sunset Crater reminds one of Capulin Mountain. Both Sunset and Capulin are typical cinder cones. Both are located in a region of one time intense volcanic activity, and both have craters at the top. The ejecta from both cones are quite similar. Sunset is the larger cone, but Capulin, because of its isolated location, is perhaps more spectacular. Both mountains are very young geologically, and owe their perfect shape to the fact that so short a period of time has elapsed since the cone was formed that erosion has not yet had time to destroy its symmetry.

WHEELER

Wheeler National Monument in southwestern Colorado is one of the several monuments in the Southwest which are difficult of approach. Located near the Continental Divide at an altitude of 11,500 feet, it is 3,000 feet above the level of the Rio Grande at Wagon Wheel Gap. It can be reached only by foot or on horseback and over a steep and rather difficult trail.

On account of its location and difficulty of access, comparatively few people have ever seen Wheeler, and yet from the standpoint of scenery, it is one of the most spectacular of our national monuments.

For a description of Wheeler, we can do no better than quote three paragraphs from a report on the region by Atwood and Mathers, Professional Paper 166 of the U. S. Geological Survey:

"About 20 miles east of Crede at an altitude of 11,500 feet, on the south side of the San Luis Peaks, there is an

area in which strikingly fantastic features abound. A tract of 300 acres in the midst of this area constitutes a national monument, named in honor of Gen. George M. Wheeler, one of the early explorers of the West. The rock at this locality is a moderately coarse volcanic tuff consisting of imperfectly stratified beds of fragmental debris which was blown into the air from volcanic vents and settled at this place. Individual particles in any bed may range from dust flakes to blocks two or three feet across. They have not been cemented together or firmly compacted, and the beds therefore crumble readily before the onslaught of rain and wind. For the most part, the tuff is light gray or chalky white, although some of the larger fragments of lava have a distinctly pinkish hue.

"As the rains have fallen upon this easily eroded material, the water has carried away much of the finer debris. Larger blocks have remained as capstones for sharp spires or pinnacles which stand alone when the surrounding unprotected material has been washed away. Slight differences in texture or in amount of compacting result in the development of hoodoo-like forms. Vertical joint cracks weaken the beds at more or less regular intervals, and hooded "ghosts" appear in ordered ranks, startlingly white against the green background of the forest.

"As time passes the wind and the rain, assisted by changes in temperature and by frost action, will complete the disintegration of this rock material and carry it away. It is a pretty example of a landscape that is passing through a very interesting history. It is now at its prime and has developed a maximum of fantastic features. In the future the existing spires and pinnacles will crumble away, and ultimately this area will be reduced to one of the softened contour characteristic of old worn-down mountains. It was not so beautiful yesterday, and the beauty will be gone tomorrow."

CHIRICAHUA

Chiricahua, or "Wonderland of Rocks", in southeastern Arizona, is a forest, or rather a series of forests, of upright rock spires, pinnacles, and balanced rocks, covering the mountain slopes over many square miles. How many spires? No one knows. They have never been counted, but certainly tens of thousands, possibly hundreds of thousands, large and small, standing upright in rows like platoons of soldiers. What caused **them**? Geologists say they were formed by the rapid cooling of rhyolite -- a kind of volcanic rock, plus natural weathering and erosion.

Perhaps the best explanation, and the one usually accepted, is that a vast amount of volcanic rock was spewed out of a series of vents and

VOLCANOES AND NATIONAL MONUMENTS IN THE SOUTHWEST (CONT.)

crevices, and covered the surface to a depth of hundreds or thousands of feet. This mass of rock cooled rather slowly, and in cooling two series of cracks, or joints, were formed at right angles one to the other. Throughout long ages, water falling as rain soaked into the rock along these joint planes. The rock contained certain minerals which **are** easily acted upon by water, so that the rock along the joint planes was dissolved away. The spires, pinnacles, and other unusual erosion forms that we now see are the remnants that have been left.

BANDELIER

Bandelier National Monument in northern New Mexico is located on the eastern slope of the largest known extinct volcano in the world. This volcano is known as Jemez, or Valles, Mountain, the center of which lies west of the Rio Grande about 30 miles in a straight line northwest of Santa Fe.

The volcano is oval-shaped, approximately 50 miles long north and south, and 35 miles wide. Near the center of the volcano is a crater 16 to 18 miles in diameter, over 50 miles in circumference, and 600 to 800 feet deep. The rim of the crater stands at an elevation of over 11,000 feet above sea level. The Rio Grande at the base of the volcano is 5,500 feet above sea level.

Those who have made a careful study of the area tell us that there were at least three periods of volcanic activity at this place. Some of the volcanic material spilled out of the crater as hot, molten lava, which ran down the slopes and finally cooled, forming hard, black, basalt which now caps the many mesas around the periphery of the mountain. But much of the material was in the form of ashes, cinders, and small fragments of rock which were blown high into the air by the explosive force of the volcano. This material was caught up **by** the prevailing westerly wind and carried to the east and north where it settled to the ground. Throughout a long period of time, this accumulation of ashes and associated rocks built up what is now known as the Pajarita Plateau, which lies between Jemez Mountain and the Rio Grande.

Along the eastern slope of the Jemez volcano, numerous streams, heading near the crater and flowing down the slope to the Chama and Rio Grande, have cut rather narrow and deep canyons into this plateau. The map shows more than 50 of these streams. The rock in the sides of these canyons is largely the compacted ashes and cinders originally blown from the crater. The name for this rather soft gray rock is tuff, or sometimes tufaceous rhyolite.

It is in the small caves, or cavates, in the cliffs alongside these canyons that the Old People built their homes. The two most noted cliff dwellings in the area are in Frijoles Canyon on Bandelier National Monument, and at Puye Ruins, which belong to the Santa Clara

Indians.

In this region there are also many ruins of pueblos, or community houses, usually built on the plateaus, or mesas, between the canyons. The largest of these are the Puye ruins on the mesa immediately above Puye Cliff Dwellings, and two ruins Ottawi and Tsankawi, located on the detached area of Bandelier National Monument. But Tyuonyi ruin is located, not on a mesa, but in Frijoles Canyon on Bandelier National Monument.

GILA CLIFF DWELLINGS

Gila Cliff Dwellings National Monument is located on West Fork of Gila River in the Mogollon Mountain country of southwestern New Mexico. The area is flat upland into which three forks of the Gila have carved steep-sided canyons averaging from 500 to 1,000 feet deep, and 20 to 30 miles long.

The rocks in the area are all volcanic. For the most part they consist of tuff or rhyolite, usually buff to gray in color. The source of the rock is believed to have been in the Mogollon Mountains where the heated material oozed up through giant fissures in the earth's crust and flowed as soft mud down the slopes. On cooling, this mud hardened and was compacted forming the rhyolite we see today. Some of it may have been ejected in the form of ashes from volcanic vents, hurled far into the air and carried considerable distances by winds.

It is into this rather soft even-textured rock that the Gila and its tributaries have cut, and are cutting, the steep-sided canyons we see today.

Along these cliffs there are many caves. Most of them are only rock shelters, or places where the top of the cliff overhangs the lower part. But occasionally one finds a cave 10 to 50 feet deep. Many of these caves and rock shelters have served as human habitations. Some of them have been walled up in front leaving a door scarcely large enough to admit a man. Others, much larger, contain several rooms.

Gila Cliff Dwellings National Monument was set aside to preserve a series of these caves located on a side canyon of the West Fork of the Gila. The following description of the caves is taken from a memorandum prepared shortly after my visit to the monument in October, 1937:

"The cliff dwellings, four in number, are located in a precipitous cliff about 200 feet in height, along a small tributary of West Fork of Gila River, known as Cliff Dwelling Canyon. The dwellings are in natural caves along the south-facing cliff, about 100 feet above the stream bed. The rock forming the cliff is volcanic rhyolite. The monument can be reached only by foot

or on horseback.

"The caves containing the ruins will here be numbered consecutively, in the order reached on our inspection; No. 1 being farthest upstream:

"Cave No. 1 is a small cave, smoke-blackened, probably 20 feet long and 10 feet high. Across the front of this cave, a wall formerly extended.

"Cave No. 2 is approximately 65 feet long, 40 feet deep, and 10 feet high. It contains seven rooms, built of masonry with walls averaging one foot thick, well constructed, and heavily mortared. There is much debris in the bottom of the cave, probably the result of countless fires and accumulated ashes.

"Cave No. 3, the largest of the group, is approximately 300 feet long, 50 feet high, and 75 feet deep. It is a triple cave with three openings, separated by two natural rock pillars. There were originally 22 rooms, mostly rectangular, but one is circular -- possibly a kiva -- other are irregularly shaped. They are well constructed of stone, with walls averaging one foot thick, jointed with mortar. In many places finger marks of the builders may be seen on the walls.

"Cave No. 4 is inaccessible, being located far up on the side of the cliff, so that it has never been visited."

TONTO

Of the seven national monuments in the Southwest, located in regions of volcanic rocks, the geology of Tonto is most difficult to explain.

Capulin and Sunset are conventional cinder cones of the type found all over the world. Wheeler and Chiricahua are unusual or unique erosion forms carved by weathering in volcanic lavas. At Bandelier and Gila there are caves in the sides of cliffs which are composed of soft tuff or rhyolite. At all of these places the geology is perfectly simple and easy to explain.

But Tonto is different. The outstanding features which justify its existence as a monument are the caves or rock shelters under overhanging cliffs, far up the mountain side. Each cave contains a number of ruins not very different from many other ruins throughout the Southwest. Only one cave is now accessible to the public.

It is the geology and not the archaeology of Tonto that is

complicated. The rocks near the caves are of two kinds. The cliff over the cave is a heavy black volcanic basalt. Along the slope below the caves are masses and fragments of thin-bedded quartzite. The problem is: What is the relation between the two, and how did the quartzite get where it is?

The following excerpts are from a geological report on Tonto, prepared from an inspection made January 30, 1938:

"Lying above the granite in this area and exposed along the eastern slope of the mountains, is a series of stratified rocks, known as the Apache group. The two upper formations of this group, and the only ones with which we are concerned at this time, are the Troy quartzite and below it the Mescal limestone, each being several hundred feet thick. These formations are exposed at Roosevelt Dam, where the rocks are inclined at an angle of approximately 45 degrees.

"After the time of the tilting of these beds and the subsequent erosions which cut away the tops of the mountains, there occurred in this area a time of great volcanic activity. Vast amounts of molten lava were poured out from the interior of the earth, covering the underlying rocks. On cooling and hardening, this lava became basalt, which now covers the greater part of the hills in this region.

"On Tonto National Monument, there is evidence of great changes or modifications of the sedimentary formations, the Mescal limestone and Troy quartzite. As just stated, volcanic activity is much in evidence. The upper part of the ridge near the caves consists largely of basalt and other forms of volcanic rocks. Mixed with the volcanic material there are many masses, large and small, of Troy quartzite, now found at an elevation of several hundred feet higher than their original position. How did they get there? It has been suggested by certain geologists that the molten volcanic lavas caught up and fractured the brittle quartzite, and raised the fragments far above their original position. From what I was able to observe during the time of my visit to the monument, this explanation would appear reasonable. At least none better now suggests itself to me."

Somehow, as I think over the situation, this explanation does not quite satisfy me. It is rather unusual for volcanic lava to engulf and raise far above its natural location, masses as large as those seen near the Tonto caves. Probably some more intelligent geologist, with more opportunity for study, may find a better explanation.

*****SWM*****

SOUTHWESTERN MONUMENTS

MONTHLY REPORT



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DEPARTMENT	OF	THE	INTERIOR
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PERSONNEL

HEADQUARTERS, Southwestern Monuments, Coolidge, Arizona; Frank Pinkley, superintendent; Hugh Miller, assistant superintendent; Parke W. Soule, chief clerk; J. H. Tovrea, assistant engineer; Dale S. King, assistant park naturalist; Charlie R. Steen, junior park archeologist; Natt N. Dodge, junior park naturalist; Luis A. Gastellum and Russell Landry, clerk-stenographers; Ira G. Goodwin, CCC clerk; F. E. Stonehocker, machinist; J. L. L. Baehr, utility man.

FIELD STATIONS; NO. VISITORS, 1937; POST OFFICE; PERSONNEL; AREA IN ACRES			
1. <u>Arches</u> ;	1,000; Moab, Utah; Harry Reed, ranger.- - -	4,520.00	
2. <u>Aztec Ruins</u> ;	14,303; Aztec, New Mexico; T. C. Miller,- - custodian; James W. Brewer, Jr., park ranger.	25.88	
3. <u>Bandelier</u> ;	14,380; Santa Fe, N. Mex.; C. G. Harkins, - - custodian; I. McNeil, T. Onstott, J. M. Spuhler, temporary rangers; George Sholly, grader operator; 3 CCC guides.	26,026.20	
4. <u>Canyon de Chelly</u> ;	1,422; Chin Lee, Arizona; Johnwill - - Faris, custodian; Bill Lippincott, W. Spires, rangers.	83,840.00	
5. <u>Capulin Mountain</u> ;	26,100; Capulin, N. Mex.; H. Farr, Cust. -	680.37	
6. <u>Casa Grande</u> ;	33,631; Coolidge, Ariz.; A. T. Bicknell,- - custodian; Don W. Egermayer, park ranger; J. Rodgers, S. Coyle, V. Scholz, T. Savage, J. Holt, and F. Morales, CCC guides and helpers.	472.50	
7. <u>Chaco Canyon</u> ;	8,014; Chaco Canyon, N. Mex.; Lewis T. - - McKinney, custodian; Homer Hastings, temp. ranger.	21,512.37	
8. <u>Chiricahua</u> ;	9,288; Douglas, Ariz.; Frank Fish, cust.;- - H. Bennett, Wm. Stone, H. Minton, CCC guides and helpers.	10,887.00*	
9. <u>El Morro</u> ;	2,298; Ramah, N. Mex.; R. R. Budlong, cust.- -	240.00	
10. <u>Gila Cliff Dwellings</u> ;	250; Cliff, N. Mex.; no custodian-	160.00	
11. <u>Gran Quivira</u> ;	4,414; Gran Quivira, N.M.; G. L. Boundey, cust.	610.94	
12. <u>Hovenweep</u> ;	500; Cortez, Colo.; A. Peterson, temp. ranger.-	285.80	
13. <u>Montezuma Castle</u> ;	9,813; Camp Verde, Ariz.; Earl Jackson,- cust.; Edwin Alberts, park ranger.	520.00	
14. <u>Natural Bridges</u> ;	740; Blanding, Utah; Zeke Johnson, cust. -	2,740.00	
15. <u>Navajo</u> ;	329; Kayenta, Ariz.; John Wetherill, cust.;- - - W. F. V. Leicht, park ranger.	360.00	
16. <u>Organ Pipe Cactus</u> ;	5,000; Ajo, Arizona; no custodian.- -	330,670.00	
17. <u>Pipe Spring</u> ;	1,042; Moccasin, Ariz.; Leonard Heaton, cu.	40.00	
18. <u>Rainbow Bridge</u> ;	300; Tonalea, Ariz.; no custodian. - - -	160.00	
19. <u>Saguaro</u> ;	20,000; Tucson, Arizona; no custodian - - - -	63,284.00	
20. <u>Sunset Crater</u> ;	10,000; Flagstaff, Ariz.; P. Beaubien, cust.	3,040.00	
21. <u>Tonto</u> ;	5,368; Roosevelt, Ariz.; R. Richert, temp. ranger. -	1,120.00	
22. <u>Tumacacori</u> ;	18,472; Box 979, Nogales, Ariz.; Louis R. - - Caywood, cust.; T. Cronyn, park ranger.	10.00	
23. <u>Walnut Canyon</u> ;	10,772; Flagstaff, Ariz.; P. Beaubien, ranger-	960.00	
24. <u>White Sands</u> ;	91,532; Alamogordo, N. Mex.; Tom Charles, - custodian; Joe Shepperd, grader operator.	142,987.00	
25. <u>Wupatki</u> ;	2,080; Flagstaff, Ariz.; David Jones, in charge-	35,865.00	
26. <u>Yucca House</u> ;	400; Cortez, Colo.; A. Peterson, temp. rgr.-	9.60	
Total visitors, 1937, 291,426. Total acreage administered last month, 731,026.96 acres, or 1,140.66 square miles.			

*Added 6,407 acres during month by Presidential proclamation.

OPENING

By Superintendent Frank Pinkley,
Southwestern Monuments,
Coolidge, Arizona.

If the up-swing, which seems to have set in with eastern markets as this is being written, July 2, is a real one, we are as yet unable to report that it has reached our district. The best report that we are able to give is that business is not so good as last year at this time and if it is better than last month, it is such a small shade that we cannot tell it through the traffic reports of our men. Don tells me that he has been studying the registration at Casa Grande as he was closing the month-end reports, and there is a lack of tourist traffic out of the Illinois and Iowa country, as compared with last year and the year before. From some of the current press releases we note some of the parks are having increased attendance. We wonder if our monuments, being in many cases off the highways, are more responsive to a slacking off of travel.

One interesting observation is that Flagstaff, in northern Arizona, has put on a drive with the idea of detaining the visitor and getting him to stay longer in the country. Several young lady "Hostesses" greet strangers and distribute information about nearby points of interest, travel conditions, etc. Our figures would seem to show that they are getting results, for while Tumacacori, Casa Grande, Tonto, and Montezuma Castle, running through the middle line of the state, show decreases over last year, the three monuments within striking distance of Flagstaff, Walnut, Sunset Crater, and Wupatki show sharp increases.

Our financial year closed in a fairly satisfactory manner. Our equipment is in good condition and we were able to put in a heating plant at Tumacacori, a power and light line at Montezuma Castle, and to put part of our power line at Casa Grande under ground with the last of our funds. We are thus advancing in our general program of construction, a little at a time.

Under personnel changes, James B. Felton, ranger, White Sands National Monument, has been transferred to Fort Jefferson National Monument, Florida. Irving McNeil, T. Onstott, and J. M. Spuhler, are temporary rangers at Bandelier. Wm. Lippincott and Woodrow Spires are temporary rangers at Canyon de Chelly. Alfred Peterson is ranger at Hovenweep and Yucca House. R. S. Richert is ranger at Tonto. This fills our quota of summer men with the exception of one man for a new position at Chiricahua after July 1. These men are all settling into their positions and absorbing the extra load of the summer season.

Boundary changes were made by Presidential proclamation at Chiricahua National Monument during the month. 6,407 acres were added to the monument, making a total area now of 10,887 acres. The increase was necessary to obtain administrative control of the road to Massai Point and also of some of the formations which had been accidentally omitted

OPENING (CONT.)

in the original reservation.

Further field action was had on a small extension to Walnut Canyon National Monument during the month and this matter is now in the Washington office awaiting your conference with the Forest Service. Action on Saguaro boundaries was closed for the time being by the adjournment of Congress and we understand all things will remain in the present status until after January next.

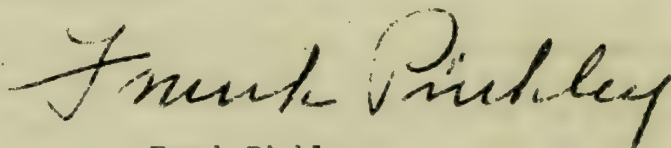
Our CCC camps at Bandelier, Chiricahua, Chaco, and Casa Grande continued operation during the month. The new camp, NM-5-A, Camp Elden, near Flagstaff, Arizona, was not yet in operation, although we expect the men to occupy it soon after July 1. This new camp will begin its work at Walnut Canyon. The side camp at Chaco Canyon is being financed through the aid of the Indian Service, its membership being composed of Navajo Indians. There were fears for a time that the Indian Service support might be withdrawn, but as we write this, it looks like we will be able to continue for the next fiscal year.

As we enter the new fiscal year, the outlook is good if there be no impoundment of our funds. By this we mean that we will be able to get through the year holding our personnel and equipment together in good condition and deliver service to about half the 340,000 visitors who will visit the monuments under our charge. The lack of service to the other half of the visitors will be because they will visit monuments where we cannot yet place personnel to take care of them.

In the following six pages you will find a condensed report of the administration of the 26 monuments under this headquarters for the past month. Detailed reports from the individual monuments then follow, to which we refer you for a more complete description of what happened at the monument. You will then find a general report from the headquarters covering the work of the Educational, Administrative, and Mechanical divisions and including statistics and records of the month. The whole is closed with a couple of pages of personnel notes.

An index is attached to this report. It covers the past six months of the Monthly Report and we hope will assist interested persons in finding any section of any report during that time.

Cordially,



Frank Pinkley,
Superintendent.

CONDENSED REPORT

IN WHICH THE HIGHLIGHTS OF THE MONTH ARE GIVEN

Coolidge, Arizona,
July 1, 1938.

The Director,
National Park Service,
Washington, D. C.

Dear Mr. Director:

The Condensed Report for the month of June, 1938, follows:

	<u>June</u> <u>1938</u>	<u>June</u> <u>1937</u>	<u>June</u> <u>1936</u>	<u>To Last</u> <u>Month</u>	<u>Travel Year</u> <u>To Date</u>
<u>TRAVEL</u>					
Arches.	114	--	--	766	880
Aztec Ruins	1,873	1,802	1,323	9,637	11,710
Bandelier	1,718	1,341	1,810	5,029	6,747
Canyon de Chelly. . . .	178	208	209	542	720
Capulin Mountain. . . .	2,000*	2,000	2,500	6,200	8,200
Casa Grande	1,794	2,389	1,661	26,621	28,415
Chaco Canyon.	903	901	643	3,068	3,971
Chiricahua.	1,292	1,501	851	5,232	6,524
El Morro.	417	258	223	1,005	1,422
Gila Cliff.	10*	--	--	35	45
Gran Quivira.	553	781	309	1,614	2,167
Hovenweep	25*	--	--	100	125
Montezuma Castle. . . .	1,121	1,205	1,216	5,183	6,304
Natural Bridges	67	109	--	167	234
Navajo.	55	--	--	139	194
Organ Pipe.	150*	--	--	5,100	5,250
Pipe Spring	388	50	362	1,041	1,429
Rainbow Bridge.	35*	--	--	102	137
Saguaro	900*	--	--	18,572	19,472
Sunset Crater	885	491	459	2,499	3,384
Tonto	301	403	335	3,847	4,148
Tumacacori.	856	1,429	911	11,284	12,140
Walnut.	2,138	1,548	1,441	4,270	6,408
White Sands	10,039	8,674	8,852	46,549	56,588
Wupatki	356	252	267	769	1,125
Yucca House	10*	--	--	130	140
TOTALS	28,178	25,342	23,471	159,701	187,879
Same date year ago					160,056
Increase to date					27,823
*Estimated.					

Although some of the northern monuments reported very bad weather for June, the month as a whole has been a pleasant one in the Southwest. Travel to a few units is being slowed up because of road construction, but most highways are open and in A-1 condition, which probably means that the general falling off of traffic is due to unsettled economic conditions in the nation. Rains have fallen over almost all of the Southwest and ranges have benefitted by them. There is very little water stored in most of the reservoirs, however, because of last winter's very scanty snowfall.

000 GENERAL

010 Matters of Unusual Interest or Importance.

Chiricahua: The proclamation for the extension to the monument has been signed by the President. (Page 503).

100 ADMINISTRATIVE

120 Park Inspections by

123 National Park Service Personnel

Aztec Ruins: H. C. Bryant; Charles N. Gould; W. B. McDougal; Ward Yeager; and Natt Dodge. (Page 496).

Bandelier: W. H. Wirt; Natt N. Dodge; Lyle Bennett; W. B. McDougal; John H. Diehl; Harry Montgomery; Fred Johnson. (Page 477).

Canyon de Chelly: High Miller; Natt Dodge; Homer Hastings.

Capulin Mountain: Natt Dodge.

Casa Grande: John H. Haile; Louis Caywood; William Lippincott.

Chaco Canyon: Charles N. Gould; W. B. McDougal; H. C. Bryant; Hugh Miller; Natt Dodge.

Chiricahua: Natt Dodge; Luis Castellum. (Page 503).

El Morro: Hugh Miller; Ward Yeager. (Page 483).

Gran Quivira: Natt Dodge; Charles N. Gould. (Page 497).

Montezuma Castle: Hugh Miller; Harry Montgomery; J. H. Tovrea.

Tumacacori: Frank Pinkley; Dale King; Mrs. R. E. Folk; John H. Haile. (Page 498).

Walnut Canyon: Hugh Miller; J. H. Tovrea; Mr. H. A. Montgomery; Natt Dodge.

Wupatki: Paul Beaubien; Carelton Wilder; Frank Richardson; D. Babenroth.

150 New Equipment

Bandelier: Museum equipment received during the month: two study skin cases, one geological case, one herbarium case, and one wall Multiplex. (Page 478).

Walnut Canyon: One typewriter. (Page 482).

Aztec Ruins: A typewriter. (Page 495).

Gran Quivira: An herbarium case. (Page 497).

Headquarters: Blue point wrench set, two hand trucks, meter and rheostat for battery charger, electric polisher and grinder, transformers for utility area, one-ton chain hoist. (Page 522).

CONDENSED REPORT (CONT.)

200 MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

210 Maintenance, Unusual

Aztec Ruins: Roof of the Custodian's residence repaired and water-proofed. (Page 495).

Canyon de Chelly: Residence and tool shed have been plastered.

Casa Grande: A laborer has hired to plaster, paint, and kalsomine in three residences and the Custodian's office. (Page 520).

Headquarters Mechanic: Report on page 522.

Montezuma Castle: Entrance road completed. Flamo gas plate installed in Ranger's tent. Temporary installation of gas tank and pump made. (Page 509).

Tumacacori: Cemetery wall completed except for brick capping. Adobe pit partially filled. New clothes line posts erected. Ramada built at Custodian's residence.

230 New Construction

231 CCC Construction

Baumgardner: Plastering and rough plumbing completed in lobby during the month. Ocorator's residence completed except for interior finish. All doors and windows in dormitory hung. 550-gallon gas tank installed in the power house, project complete. First guest cabin group started. Construction of dining room tables started. Rock quarry crew kept busy all month. (Page 479.)

Casa Grande: The shop, Job No. 50, nearly complete. Man days, 87. Guide and contact work, 111 man days. Oil house, Job No. 52, begun, man days--107. Cleanup, 47 man days. Making adobes, 18 man days.

Chaco Canyon: 55 man days building pit toilets. Ten man days on drainage, and 276 man days on wall support. (Page 518).

Chiricahua: 100 sq. yards of rock banks sloped on Bonita Highway. Crew has been at work all month on the water system. Bridge No. 2 completed and forms in place for Bridge No. 1. Echo parking area is 100 per cent complete. Utility area wall completed. 27 man days used in fighting two fires in the Coronado Forest. 310 man days and 35 truck days released to the Army for camp rehabilitation. (Page 315).

Pipe Spring: Four enrollees were used to haul dirt and construct pit toilets during the early part of the month. (Page 517).

250 Improvement of Nearby Federal Highways.

White Sands: Contract for construction of 26 miles of highway between Alamogordo and Las Cruces means that the gap of rough gravel road near the monument will be finished. The work should be finished by winter. (Page 493).

Aztec Ruins: The highway from Aztec to Farmington is being oiled; the spur road to the monument is also receiving the same treatment.

300 ACTIVITIES OF OTHER AGENCIES

320 Cooperating Government Agencies

Montezuma Castle: The General Land Office survey party has completed the survey of the monument boundary. (Page 510).

Aztec Ruins: Fifteen $2\frac{1}{2}$ -hour man days have been put on grounds cleanup through cooperation of the NYA.

CONDENSED REPORT (CONT.)

330 Cooperating Non-government Agencies

Arches: The Denver and Rio Grande Western Railroad sent a party into the Arches to film the monument. The film will be a part of a full length feature of Utah and will be shown free of charge by the railroad company. (Page 506).

400 FLORA, FAUNA, AND NATURAL PHENOMENA

420 Museum Service

Bandelier: Junior Park Naturalist Dodge spent three weeks working on the geology and biological cases. (Page 478).

Montezuma Castle: A museum case, formicary, and aquarium were all installed in the museum room. (Page 509).

Tumacacori: Two truck loads of exhibits were received from the Western Museum Laboratories. Lorenzo Moffett and Bert Floyd spent ten days at the monument, doing preliminary installation. (Page 500).

440 Insect Control

Bandelier: Four trees infected with *Ips Confusus* were destroyed.

600 PROTECTION

620 Fire protection

Bandelier: Fire pre-suppression schools held each week-end. Five fires fought during the month--four were on the Ramon Vigil Grant and one on the monument. Monument fire lookout reported all blazes before the Forest Service.

Chiricahua: 27 man days spent in fighting two small fires on the Coronado National Forest. (Page 316).

650 Signs

Hovenweep: Warning signs are being placed around the ruins of this monument. (Page 491).

Arches: Three signs have been erected to mark the trail from the highway to the Windows section of the Arches.

700 ARCHEOLOGY, PRE-HISTORY, AND HISTORY

Navajo: A disgruntled Navajo told a trader that he intended to wreck Inscription House, but since the ruin still stands, he probably forgot about it. (Page 505).

Chaco Canyon: Controlled tests are being made to determine the strength of bitudobe capping against weathering. (Page 517).

Casa Grande: Pottery repair project ended during the month. (Page 519).

900 MISCELLANEOUS

Tumacacori: Water table in Santa Cruz Valley lowered because several deep wells with pumps have been installed by ranchers. As a result, the old mission canal which has served the monument and local farmers for many years is dry and trees and crops are suffering. (Page 499).

CONDENSED REPORT (CONT.)

900 MISCELLANEOUS (CONT.)

MAIL COUNT

Incoming:

Official	2,899
Personal	<u>1,238</u>

Total incoming	4,137
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Outgoing:

Official only	<u>4,026</u>
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Total outgoing	<u>4,026</u>
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TOTAL POSTAL MAIL	8,163
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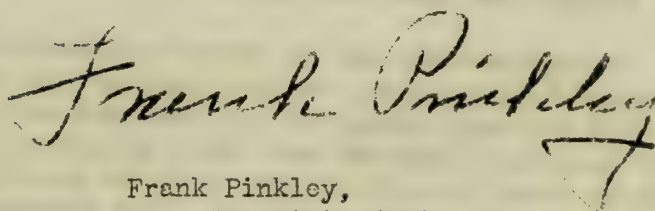
Telegrams:

Incoming	48
Outgoing	<u>74</u>

Total telegrams	<u>122</u>
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GRAND TOTAL PIECES OF MAIL HANDLED 8,285

Cordially,



Frank Pinkley,
Superintendent.

ANNOUNCING A NEW FEATURE

With the next number, we start a new volume of this Monthly Report of the Southwestern Monuments and we expect to change the format a little. With this in mind, we have held out some of the material this month and explanation is made here so that those who notice it may know that we have very good reasons for what we do and that it is not an accident or carelessness or non-appreciation on our part.

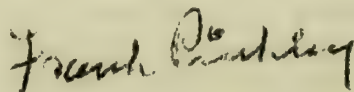
We are getting so many and such interesting observational notes from the field that we think we will start a little department in the Supplement where they can be drawn together and given a little more attention. By withholding these notes this month, we can carry them over into next month's Supplement, which goes to press some days ahead of the regular report and that will give us time to dress them up a little. Natt Dodge is going to have charge of this innovation and you will see better next month what we intend to do.

If the field personnel will extend its efforts in this direction just a little more, we are quite sure we can have enough material to make a complete Supplement about once each quarter of these observational reports and of these quarterly numbers, we can run enough separates to make a special report. This will be akin, but not a duplicate, to the 'Nature Notes' put out by many of the parks.

With this issue, we close the first volume of the 1938 reports and you will find an index at the end of this number which will cover the reports from January to June, inclusive. To be quite truthful with you, we rather surprise ourselves at the amount of reference material we tuck away month by month in these reports and only those inside our Service can realize how much fun we have in doing it.

To you who may not be directly connected with our Service, yet who receive these reports, we hope they are of interest and value to you. If they are not, please do not hesitate to write and tell us so and we will take your name off our list; we have plenty of other uses for the time we spend in getting your copy to you and if it isn't a real service to you, we had better spend the time elsewhere.

Cordially,



Frank Pinkley,
Superintendent.

FIELD REPORTS

FROM THE MEN ON THE JOB

BANDELIER

By C. G. Harkins, custodian,
Box 669, Santa Fe, New Mexico.

Visitors this month, 1,718; total since October 1, 6,747.

PARK SERVICE VISITORS

Mr. W. H. Wirt, regional forester, Santa Fe, New Mexico.

Mr. Natt N. Dodge, junior park naturalist, arrived June 1 from headquarters, Southwestern National Monuments, Coolidge, Arizona, to install a few cases in the museum.

Mr. Lyle E. Bennett, associate landscape architect, Santa Fe.

Mr. W. B. McDougall, wild life technician, Santa Fe.

Mr. John H. Diehl, regional engineer, Santa Fe.

Mr. Montgomery, assistant engineer, Santa Fe.

Mr. Fred Johnson, deputy assistant director, Washington, D. C.

Three temporary rangers entered on duty June 1: James N. Spuhler, Thomas B. Onstott, and Irving McNeil, Jr.

OFFICIAL TRIPS

One official trip was made during the month at the request of the Director. The Custodian accompanied the National Geographic Magazine photographer to the source of the Rio Grande. Many beautiful pictures were secured for a future article in the magazine. Rain and snow in the mountains west of Creede, Colorado, delayed the party for several days, but the source was finally reached by pack horse on the fourteenth. New snow had fallen the day previous, and with the snow already on the ground, the horses wallowed belly deep at times. Some remarkable pictures were secured, in addition to a case of sunburn. The travel for one day was 220 miles by car and 36 by pack horse. After returning from Colorado, several days were spent in the vicinity of Albuquerque and Santa Fe. Mr. Marden, the photographer, left for Washington, D. C. the 22nd.

FIRE PROTECTION

Three small fires were suppressed during the month. One in Lummis Canyon was started by lightning and covered about one acre, but was easily suppressed. Another fire was in Ancha Canyon, and was presumably started by a careless tourist flipping a cigarette out of the car window as he drove along the road.

GUIDE SERVICE

With the addition of three temporary rangers, guide service has been

BANDELIER (CONT.)

offered to all our visitors, and with the additional cases in the museum, a great deal of interest has been shown by the visitors. One change noted is that as soon as the local visitors find we have a museum, they are anxious to see it instead of going on over to the camp ground, and guiding themselves. Another thing noted is that once they get out to see the museum, very few stop until they have taken a regular guided trip. This is very gratifying, in view of the fact that our guided trips have not been as numerous as they might have been, and it is hoped that the trips will show a great improvement in numbers over the past. This condition is also affected by the very competent temporary rangers that we have.

Travel to Bandelier was slightly greater than that for the corresponding month in 1937, although business men in Santa Fe say that the tourist business is very bad.

The weather had been very dry up to the first of June. However, since then, we have had showers nearly every day and, as a result, our road is in very good condition.

Several days were spent on the Otowi Hill road with a crew of men, and we now have it in fair condition.

Temporary Ranger James Spuhler has spent nearly the entire month in the museum arranging the geological and biological cases. Natt Dodge, junior park naturalist, spent three weeks working on museum preparations. Contracts are out for the glass to complete our cases. This will leave our cases completely closed.

Two storage cases, one geological case, one herbarium case, one study skin case, and a wall multiplex were received during the month.

CONTACT PROBLEM

As many people who live in nearby towns and have been here many times before bring friends to see the ruins and prefer to show them through themselves, it makes it very hard to get a high percentage of educational contact. As previously mentioned in this report, the museum, even in its unfinished state, helps to contact these people, but as far as this month's figures are concerned, it has made little impression. The museum time has been rather short and guided trips few. This can be attributed to two main causes: first, the exhibits are not half completed; and, second, the lights are not on enough to take care of many parties who would be very willing to go through. After the cases are all completed and the lights are regulated, the educational contact time should almost double.

Due to a shortage of man power in the field, the SWM Stencil #16, third revision, has heretofore not been workable. However, the last half of this report finds it working in top form. Next month, when Oscar Van Curen, CCC guide, returns from his vacation and we have a full

BANDELIER (CONT.)

force guiding it will be quite possible to work the three loops of ruins and the museum, making a 400 per cent possible contact, and a consequently longer field trip time. The loops as proposed are: first, Tyuonyi and talus ruins immediately above it; second, Long House; third, the Ceremonial Cave.

The inaccuracies in this month's visitor statistics, we hope, are absorbed in the average. Next month, we should have little trouble making both ends of SWM #16 meet.

*****SWM*****

Congratulations on the improvement in Form SWM 16 this month. I think maybe we had better try a little harder, while we have the guides available this summer at Bandelier, to handle all the parties we can. I don't feel quite right about letting these local repeaters guide their own parties just because they want to do so. The visitor who is thus guided certainly gets a fearful and wonderful assortment of archeology and geology and our ruins do not get much protection. I am aware of the friction which might arise from the local repeater who "has been here a hundred times and knows all about the ruins", and who will probably not come back if we do our own guiding, but, in a pinch, I am willing to dispense with him as a volunteer guide.

Suppose, while we have men enough this summer, you carry on some experiments.--F. P.

*****SWM*****

BANDELIER CCC

By H. B. Chase, project superintendent, Box 669, Santa Fe, N. M.

The plastering and rough plumbing was completed in the lobby and sales room building during the past month. The carpenter crew cut out and started the assembling of all doors in this building, making ready for installation immediately following complete drying of the plaster.

During the month the operator's residence was completed to the point of starting interior finish, all stone walls and flagstone floors are now in place and the roof completed entirely. It is planned to install the rough plumbing and follow with interior plastering and painting during the next month.

The hanging of all doors and windows and the installation of the necessary hardware completed the employees' dormitory to the point of painting and staining. There remains the plumbing fixtures to install and after decorating will complete this unit in its entirety.

A 550-gallon gasoline storage tank was purchased and installed in

BANDELIER CCC (CONT.)

connection with the power house. This completes this project.

The first guest cabin group in connection with the hotel development was started this month. This is Group A, immediately in the rear of the lobby and sales room unit and directly west of the operator's residence. The excavation has been completed, all footings constructed, and a good start made on the wall construction.

In addition to the carpenter crew duties in connection with the different units of the hotel development now under way, this crew started the construction of the dining room tables under our furniture project. Time spent on this work was mostly consumed by cutting out materials preparatory to the assembling operation.

The usual crew has been maintained in the rock quarry all month for the purpose of quarrying and shaping building stones, the activity for the last half of June being confined to clean-up and that shaping of materials that would require only hammer and chisel operation. This is due to the project foreman's being on annual leave prior to the Service instructions separating three members of our personnel.

A small number of man days was consumed during the month in fighting small forest fires. A detailed report of the fires is included in Forestry Foreman Fulton's report, submitted for this month.

*****SWM*****

BANDELIER FORESTRY

By James T. Fulton, forestry
Foreman, Box 669, Santa Fe, N.M.

FIRE CONDITIONS

For nearly the whole month no rain has fallen to speak of; consequently the forest has been really dry. During this time we have been doubly expecting that fires would occur. However, on June 22 rain storms covered nearly all of the monument and were exceptionally heavy on the Ramon Vigil Grant. We are fortunate that rain was heavier on the Grant, because of the fact that man-caused fires are prevalent in that area. I would say that without more rain hazards won't be bad for at least another week.

FIRE PRESUPPRESSION

About the only fire suppression work that has been done this month is the usual instructing of scheduled enrollee fire crews on week ends. Each foreman fire guard makes a point of showing his particular fire crew the tools to be used, their proper use, and the construction of the fire trail.

BANDELIER FORESTRY (CONT.)

FIRE FIGHTING

We have had fires on the following dates: May 29, June 2, June 5, and June 21. All of these fires were small ones and the total acreage burned amounted to two acres plus about 2,530 square feet. Four of these fires were on the Ramon Vigil Grant and only one was on the monument. A total of 18 man days were expended in this work. In the case of all of these fires our enrollee lookout, who mans Roadside Point, was the first to report the fires. In other words, he beat the Dome Lookout in every case. This might bring out the point that perhaps we should change the grade of our lookout from secondary to primary. Anyway, report time was good, get-away time was excellent, and no fire was left until it was out. We feel that we have an excellent fire fighting organization here.

INSECT CONTROL

You will recall that last month I reported an insect control project carried on in the case of landscape planted trees. This month four more Ips confusus infested trees were removed. These trees were missed in the previous control work.

MISCELLANEOUS

For the past month I have been working on lobby unit of the hotel, excepting for the past two weeks, at which time I located and began to lay footing for Cabin A.

*****SWM*****

WALNUT CANYON

By Paul Beaubien, park ranger,
Flagstaff, Arizona.

Visitors this month, 2,138; total since October 1, 6,408.

Visitors contacted were as follows: 1,006 at the station, 326 at the Observation Point, and 924 were not contacted. I saw 49 picnic parties, and there were 14 camping parties. Because most local people come on Sundays, they are the big days. But there were 10 other days with 20 or more parties.

Park Service visitors were: Hugh M. Miller, J. H. Tovrea, H. A. Montgomery, and Natt N. Dodge. H. Clay Parker, Project Superintendent of CCC Camp NM-5-A, spent several days of the month here.

All but 11 enrollees of the CCC camp have been transferred away, but a new group of boys are expected to arrive early in July.

This has been an extremely dry month, and many flowers have withered. The fire hazard is great.

WALNUT CANYON (CONT.)

Recently a mail route has been established through the monument. This route will cut down my official trips to town. The county has promised to keep the road open the year around, so future rangers may not have to have such a large supply of groceries on hand as has been customary.

A new typewriter has been received during the month. As I already had an eraser, it will be a great help.

*****SWM*****

WUPATKI

By David J. Jones, park ranger,
Tuba Star Route, Flagstaff, Ariz.

Visitors this month, 356, total since October 1, 1,152.

Visitor travel to this monument has increased about fifty per cent since May, and more than thirty per cent over the same period last year. At last conditions are beginning to look normal, but for a while it looked as though we were not going to get any visitors at all. In the last two weeks we have been getting a good many of our visitors from the Grand Canyon, which, I believe, is a result of our contacts with the fellows from the Canyon, both here at the ruins and in Flagstaff.

WEATHER

One could easily summarize the weather for this month by saying that it has been dusty and windy practically the entire month. Hardly a day has gone by that we have not had at least one dust storm, and the Little Colorado is a cloud of dust almost all of the time. We are hoping for an early rainy season.

GENERAL

Again this month we made a survey of the possible sites for the new road. Project Superintendent Parker, of NM-5-A, was here on the 28th and again on the 6th in this connection. He has selected two possible places to cross the canyon which is the only serious obstacle to the proposed routing. It is my opinion that Al Kuehl did a mighty fine job in planning the road for its scenic value, and keeping it out of sight from the ruins.

So that it will be possible to estimate the size of the storage tank, and determine the best source for water, Al Kuehl suggested that I check the flow from the spring. The following represents my results as compared to those of former years:

August, 1935, 514.2 gallons per 24 hours; January, 1936, 720 gallons; May 24, 1938, 960 gallons; June 23, 1938, 595.3 gallons.

WUPATKI (CONT.)

Apparently the flow is quite erratic, and varies from year to year. I understand that when the CWA excavation was in progress here during 1933 and 1934, it was necessary to haul water from Heiser spring. According to Brewer's check in 1935 and 36, the flow from Heiser amounted to about 1,000 gallons per day. Unfortunately, the pipe has since run away from this spring and we have no means of checking it at the present time. However, I intend to check the flow of the Wupatki spring until we can get a good idea of its flow.

The trappers cabin mentioned in the last month's report has not been cleaned up as yet, since I have been unable to contact Mr. Rabbitt. This matter will be taken care of as soon as possible.

On the 15th six CCC boys from NM-5-A came out with me to help put the Electrolux into the newly constructed "refrigerator room". It was not quite as bad a job as I thought it might be. One can do a good deal with a bit of man power. Two days later the Standard Oil man from Flagstaff came out with the Flamo and made the necessary adjustments on the refrigerator. Everything will be in fine order when I get a load on the room, but every time I start to the river to get materials, a visitor arrives or there is something else to do. We are ventilating this room in the prehistoric manner by having a shaft from the surface to the floor of the room, and a "smokehole" in the roof to let warm air escape. The Electrolux representative in Flagstaff says that with this system our refrigerator should function better than one would ordinarily on a porch.

On returning to town with the CCC boys, I found a visitor with a broken axle and had to tow him into Flagstaff.

Here, Boss, is a new one for the Committee on Signs and Markers. On our mailbox at Highway 89 there is a wooden hand painted white with a finger pointing to our entrance road. This, according to Clyde Peshlakai, is for the Navajos and Hopis who cannot read, and who want to get to Wupatki. Clyde has told all of his friends about it so that in a few years the fame of Wupatki may spread among the Navajos as the "Ruin with the White Hand".

GEOLOGY

The question of the cinder formation mentioned in last month's report may have a bit of light shed upon it in the near future. Mr. George L. Green, a geologist from the San Francisco Junior College took a specimen of the cinder formation in order to make a thin section for study purposes. From this he hopes to be able to determine whether or not the cinder is cemented with calcium carbonate, or whether it can be explained in another manner.

Mr. Green was also very helpful in showing me that I was a bit

WUPATKI (CONT.)

wrong in thinking that there were some fine examples of mud cracks in the Kiabab Limestone. Near Doney Mountain there is a formation that looks very much like a dried up mud puddle, except that it is in the limestone. Actually, it turns out that this is quite common in limestone and is called "real weathering". As I understand it, the surface of the limestone shatters into fairly regular shapes. Water falling on the flat surfaces erodes the limestone until the edges seem to turn up as in mudcracks.

USE OF MONUMENT FACILITIES BY THE PUBLIC

Visitors registering at the Citadel: 227; at Wupatki, 129. Since 56 of the visitors registered at both places, the total travel to the monument this month is 356. Two parties stayed overnight.

NEWSWORTHY VISITORS

National Park Service. On the 26th and again on the 6th, Project Superintendent Parker of NM-5-A, and Ranger Beaubien of Walnut Canyon. From the Grand Canyon we have had the following visitors: Carelton Wilder, Frank Richardson, and D. Babenroth--all of the Ranger Naturalist Division.

Other. On the 19th we enjoyed a visit from Miss Ruth Underhill who has done so much work on the Papagoes. From her we acquired considerable information which will be of value to Custodian Bicknell of Casa Grande.

Joseph Miller, Field Supervisor for the Federal Writers' Project was here for a short visit. Afterwards, he sent up the manuscript on Wupatki which is to be used in the Guide Book. I greatly appreciated his doing this, as there were several things which are of interest, but are usually omitted in the publications which serve as guides to the public.

*****SWM*****

CHACO CANYON

By Lewis T. McKinney, custodian,
Chaco Canyon, New Mexico.

Visitors this month, 903; total since October 1, 3,971.

The travel through the monument hasn't been anything to brag about this month, especially from the north. I believe the cause of this is the road's being under construction between Aztec and Farmington. All of the roads within this part of the country have certainly been in bad shape, due to so much dry weather, dust and wind storms which have been doing a great deal of damage to everything in general. The grass and other plants had begun to suffer. The evening of the 21st brought us a little moisture, then again yesterday afternoon it rained most of the

CHACO CANYON (CONT.)

time for about five hours, making a total of .48 of precipitation within 24 hours. It was one of these good old soaking rains rather than the hard showers that we generally have this time of year. Everything seems to have a new lease on life this morning. Even the Navajos are laughing and chanting as they work away with their mud and stone, repairing the wonderful old ruins of Pueblo Bonito, where probably a thousand years ago worked another tribe that were just as happy and contented as the Navajos today. However, they were probably repairing a roof where it had leaked through on some brave while he lay sleeping, dreaming, of the piece of venison he would eat after a long walk through the timber that probably grew on the mesas near Pueblo Bonito, rather than dreaming of the check he would receive from Washington, and the piece of salt pork he would buy at one of the trading posts near Pueblo Bonito.

WEATHER

Days clear- - - - -	-21	Maximum temperature- - - - -	-93
Days partly cloudy- - - - -	8	Minimum temperature- - - - -	-35
Days cloudy - - - - -	2	Precipitation- - - - -	.48

VISITORS

Nine hundred and three visitors were through the monument this month, arriving in 259 automobiles, 21 pick-ups, 12 trucks and buses, and one airplane which took a peek at the monument from "way up there".

Robert S. Richardson came out from Gallup on June 16 to collect data for preparing a tree-ring chart to be used as an educational exhibit by the Soil Conservation Service. We loaned him the pine log cross-section from our museum, and such publications as we thought would be useful.

National Park Service. On May 24, Dr. Charles N. Gould and W. B. McDougall, of the Santa Fe office, and Dr. H. C. Bryant, of the Washington office, were monument visitors. Dr. Bryant had the privilege of using the oldest dark room that he had ever used. However, after he had rerolled a part of his film we discovered a hole in the roof that was letting in some light. Hope it didn't spoil his film.

Hugh M. Miller arrived on May 29, and departed on the evening of May 30.

Natt N. Dodge drove in on June 20 to pay his first visit to this monument, and to make some colored moving pictures. The day was especially cloudy and windy so we can only hope his samples turn out well enough to indicate what could be done with colored pictures in the Chaco.

CHACO CANYON (CONT.)

THREATENING ROCK

Threatening Rock is still jiggling around out here. We have been measuring it twice daily again since the first of June. A graph of the movements will be mailed in on June 30. Measurements now are as follows:

<u>West end</u>	<u>Center</u>	<u>East end</u>
3 inches	3 11/32 inches	3 7/32 inches

*****SWM*****

TONTO

By Roland Richert, park ranger,
Roosevelt, Arizona.

Visitors this month, 301; total since October 1, 4,148.

Although the days have been warm and dry here at Tonto, the cool and beautiful moonlight nights are all that one could wish for. Roosevelt Lake is getting rather low, much to the consternation of the water users and fishermen alike.

Mr. Alexander, Tonto Forest Ranger, informs us that the Sierra Anchas are quite dry at this time; consequently, the fire hazard in that section is great. In fact, several small fires have already been noted, but promptly extinguished with slight damage occurring.

Traffic has been light on the Trail, which is to be expected at this season. Discounting Arizona, the majority of visitors this month have been from California and Texas, the former going east and the latter, west. Two conventions on the Coast, the Shriners at Los Angeles and the meeting of the American Medical Association at San Francisco were responsible for visits to Tonto by several Shriners and physicians.

A distinguished and most informative visitor was Miss Ruth Underhill of Washington, D. C., noted authority on the Papago. Miss Underhill told us that she is now with the United States Indian Service, acting as an Associate Supervisor. She was en route to California where she will conduct a summer school for Indian School teachers whose purpose it is "to teach the teachers more concerning the Indians whom they teach". It is of value to note that Miss Underhill has recently come across certain points in Papago history which confirm the suggested linkage between the Papago and Hohokam. Although primarily an ethnologist, her work overlaps that of archaeology, and she was particularly anxious to see various places of archaeological import on her way to California via the Southwest. We hope she followed our suggestion to see the Snake-town material at Gila Pueblo, and Casa Grande Ruins which are important features in connection with the work she is doing.

TONTO (CONT.)

Below is the weather report for the Roosevelt area, kindly furnished by Mr. Reynolds, official observer:

Maximum temperature-	- - - - -109	Days partly cloudy-	- - - - -	3
Minimum temperature-	- - - - -62	Days clear-	- - - - -	28
Precipitation (June 13)-	- - -.02 inches.			

*****SWM*****

It looks like Roland has taken hold at Tonto in fine shape. Word comes into headquarters from his visitors that he talks like a veteran guide and we note that his field trip and museum time hold up very well.--F. P.

*****SWM*****

EL MORRO

By Robert R. Budlong, custodian,
Ramah, New Mexico.

Visitors this month, 417; total since October 1, 1,422.

June has been a busy month -- busier than we had expected. Roads were rough and sandy, high winds frequent, weather often threatening, and we had quite an increase over last June's travel.

WEATHER

As I write this report, we are having our second rain of the "rainy season" and it is greatly needed. Local farmers were reporting crops wilting in the fields, and many expressed the fear that unless rain fell this week, they would lose their crops. However, rain has fallen both yesterday and today, the ground being well soaked to a depth of about three inches.

Maximum temperature during the month was 89 degrees, on the 20th; minimum 32 degrees, on the 14th, when we had a killing frost. Traces of rain fell June 5, 6, 12, and 21; and rain in measurable quantities on the 13th, 22nd, and 23rd, to a total depth of .50 inch. Lightning and thunder accompanied most of the rains, and hail fell on the 13th. Our rainy season seems to be with us at last.

ROADS

As stated in the first paragraph, these were very rough. Continued high winds whipped the sand from the roads, exposing lava outcroppings and rock ledges. As was the case last month, holes and ruts that had been filled in within the monument boundaries were blown out, leaving

EL MORRO (CONT.)

high centers again, and little could be done to them with the continued high winds.

SIGNS

There seems to be little use in erecting new signs, since they are put up one day and disappear within the next day or two. Either that, or else they are found in fragments near the posts. During the month an order was placed for the conventional enamelled-metal signs, but if those who shoot and throw rocks at signs lose none of their accuracy, it is expected that the metal signs will suffer the usual fate of signs erected in the past.

EQUIPMENT

During the month inventory was held, and all government equipment checked with our equipment cards.

TRAILS

More work was done on the north trail during the month, but the work was not completed, due to the visitors, who invariably arrived as soon as the custodian had climbed to the top of the rock, carrying pick, shovel, and rake. Not much work remains to be done, however. Trails around the base of the rock past inscriptions, and from the cabin to the water pool, were kept raked and graded, though the high winds often undid the work soon after it had been completed. Pending the construction of a house, and of approved trails, no attempt is being made to make trails of a permanent nature. Low weeds are permitted to grow in the trails, so no permanent scar will result from the use of these temporary trails. Several detours from the trail around the rock base were made during days of high winds, to save visitors the annoyance of being hit on the head by large falling rocks. We have had no casualties to date, probably because of these detours. There have been the usual number of minor rock falls.

VISITORS

Last June we had 258 visitors to this national monument. This June we had 417. Of these, all were contacted but two, who arrived while Hugh and I were on top of the rock.

The highlight of the month was Hugh's visit. We tried to persuade him to remain overnight, but were unsuccessful.

Today, Mr. Yeager, of the Santa Fe office, paid us an all-too-brief visit, to inspect the monument for insect infestation. We were greatly relieved to find out that he had in mind insect infestation of trees. His visit was also greatly enjoyed by us, but a growing thunderstorm

caused him to depart hurriedly. Come back soon, and stay longer!

Mr. Russell and Ranger Hill, of the Forest Service, were also visitors during the month. Mr. Russell had given a motion picture lecture on forest-fire prevention at La Tinaja, seven miles distant, with the Forest Service "show boat" and the day following we had the pleasure of a long visit with him.

The State Bankers' Convention held a picnic at the monument June 5th, 85 people being present. A pit was dug, oak wood burned in it to form a bed of coals, and 50 chickens were roasted. The custodian was very busy with other visitors, and had to refuse with deep regret an invitation to the picnic. Duty called, and in spite of a badly watering mouth, he managed to conduct visitors around the inscriptions as usual.

During the month the custodian went into a huddle with Ranger Hill of the Forest Service, relative to the grave danger of forest fires in the Zuni Range across the valley from the Monument. There is no nearby observation station, and as a result of extensive logging, most of the near side of the Zuni Range constitutes a great fire hazard. Having obtained some lumber from Gallup, the Custodian is constructing a small platform on which a map (Forest Service map) of the nearby country is to be mounted, with a sighting device on it, in order that any forest fire breaking out on the part of the Zuni Range that can be seen from the monument may be spotted with accuracy. Word will then be sent to the Forest Service either by radio from the nearby Department of Commerce emergency landing field, or from this station.

COMMUNICATION

And that last sentence brings us to a somewhat premature discussion of the problem of communication with outpost monuments. The nearest public telephone is fourteen miles from this monument. In time of emergency--especially during winter months when sometimes travel is impossible except on snowshoes or skis--the outlying monuments need some way of getting in touch with the outside. The kitten having emerged from the sack in some of your remarks in the last monthly report, Boss, I imagine some sort of explanation is in order.

While stationed at Canyon de Chelly several years ago the Custodian raised the point of radio communication, and wrote for estimates on an official installation. The resulting estimates were in four figures, with no decimal point. After being snowed in for months, winter before last at this station, it was decided that some way of communicating with the outside was needed, in the event of emergency. Accordingly, the custodian purchased a small light plant, giving the necessary 110-volt a.c. current, has dug up a short-wave receiver he constructed some eight years ago, has polished up on code, and a c.w. (code) trans-

EL MORRO (CONT.)

mitter has been constructed, and is all ready to go into operation. At present the transmitter is in the East, being checked and tested by some of the foremost short-wave experts in the country. It is a low-power set, with about 20 watts output, but tests indicate it will reach out consistently to considerable distances. It is to be put in service at this monument after our thunderstorms have passed, the lightning popping consistently around the rock during our summer thunderstorms. After proving its value, it is contemplated installing two-way voice radio between the custodian's car and this office. The idea was to prove that radio communication between headquarters and the outpost monuments is something that is bound to come in time. I only regret that we had to jump the gun this way before we could actually prove its value, and the fact that initial cost need not be in four figures.

And that seems to wind up the report for this month. We have been pretty busy, and are going to be even busier for some time in the future. If we get much rain this summer our visitor travel may fall below normal, but this past month's travel was good, in spite of adverse weather conditions.

*****SWM*****

We are very glad to hear of the cooperation with the Forest Service and hope that Bud's volunteer station will be of value to them.

Sorry we jumped the gun on the communication experiments, Bud, but anything that looks like communication with and intercommunication between these far-flung places of ours gets us all pepped up and we wanted to spread the good news.

Betty's letter about her local library service is taken up in another part of this report and we would like to have every one get interested and help her out with at least one book.--F. P.

*****SWM*****

HOVENWEEP

By Alfred Peterson, roving ranger,
Cortez, Colorado.

Visitors this month, 10; total since October 1, 140.

I left Headquarters on the morning of June 7, accompanied by my better-half, and stopped that night in Holbrook. A sparkplug wire jumped off just before reaching Holbrook and we only had five cylinders for a while. The next day we took in the Petrified Forest and the P Painted Desert and went on to Gallup. On June 9, we went on to Aztec Ruins National Monument, as per instructions, encountering bad detours between Farmington and Aztec. Arriving at Aztec in the afternoon, I found Custodian Miller had gone to Chaco Canyon, but Ranger Jimmie

ROVING RANGER (CONT.)

Brewer was very much on the job. We saw the ruins with a party of visitors and talked over the problems facing the Roving Ranger. The next morning I had conference with Custodian Miller, from whom I received a shovel, some "Warning" signs and material to post them on when I can get around to the various ruin groups. Accompanied by Ranger Brewer (or rather, guided by him) we continued on to Cortez and Hovenweep National Monument. We visited the Hackberry, Horseshoe House, Holly House, and Hovenweep Castle groups of ruins - hurriedly. The Cajon group was omitted for lack of time that day, as Ranger Brewer wanted to get back to Aztec. Anyhow, it ~~is~~ anticipated that he will be back to check distances, etc., when and if we get that report of last year along with the proclamation, aerial photographs, etc., etc.

Camping conditions are not pleasant, millions of gnats making it a task to keep from being bitten all over by the poisonous little pests. After six days camping at Hovenweep Castle, Bernice was in such a swollen inflamed condition from gnat bites that a doctor was consulted in Cortez. The water in the "spring" at this place was a stagnant pool, full of filth and smelling so terrible that it was not fit to even wash your hands. We had some water with us, and later went to a spring and cement tank on the Navajo Extension, four miles distant, for water, as well as a trip in to Hackberry house where there is a flow, though small, of water, and it is cool and of good taste. Attempts to clean out the "spring" at Square Tower (Hovenweep Castle) were without results since there are only a few drops of water entering the pool and no apparent run-off. Another bad condition is the wind. It blows so much of the time and so hard that it is out of the question to do any camp cooking or keep the sand and dirt from blowing into one's bed. Except for insects, camping at the Hackberry group (I haven't tried it yet) should be very pleasant because of the shade and good water, but I consider it very undesirable to make a definite and easily followed road to this group, which would occur if used as a camp or regular water supply, until adequate protection is provided.

As an antidote for the unpleasant features is the pleasure of inspecting these unique and highly interesting ancient Indian ruins. I am not, of course, sufficiently familiar with these ruins to say to what extent they are deteriorating. Others can and have done that. With Jimmie Brewer, I can only say that as far as I have seen there are no signs of recent vandalism, but, like Jimmie, I would like to know who has sawed off some beams and removed ends of others from their ruins, and what, if any, dates were secured. I am considering trying to date one sawed end in situ on the south side of Ruin Canyon, but from my experience working on such material for Dr. Douglass, no satisfactory results are anticipated from one small specimen. The best protection from the usual vandal these ruins have is their inaccessibility, since there are no very visible roads leading to Hackberry, Horseshoe, or Holly, and there are so many trails around Square Tower group that the right one is hard to find--unless one is guided. Shepherders, stock-

men, and a few local people are about the only ones who can go to these ruins. Also, the Division of Grazing people should be mentioned in this group. But these are probably guided by stockmen. Judging from reports from former Roving Rangers, there are a few local "pot-hunters" who know all the roads. The use of these ruins for winter sheep pasture is shown by sheep filth and tins around the water.

Mrs. Ismay, at the Ismay Trading Post, told Jimmie that one lone man in a car had been looking for Hovenweep after Jimmie's trip through here on May 20th. There have been none since, and she did not know whether he had found the ruins. Mrs. Ismay says that in the past, people have asked directions to the ruins and returned, terribly disappointed, without finding them. On two occasions I have, while driving these roads, followed a fresh car track that by its winding around and back-tracking appeared to be searching for something. On such occasions, I check up to see if anybody has found our ruins. So far none have.

On June 18th, a visit was made to Yucca House National Monument. I talked with Mrs. Ray Ismay, and she told how they had to repair and reenforce the gates in the fence around the monument grounds in order to keep sheep, hogs, etc., out of that area. The fence looked rather slack and needs tightening. I hope to make a more thorough inspection again tomorrow. I am sure we are fortunate in having such friends as the Ray Ismays at Yucca House and the John Ismays at Hovenweep.

*****SWM*****

WHITE SANDS

By Tom Charles, custodian,
Alamogordo, New Mexico.

Visitors this month, 10,039; total since October 1, 56,588.

Here I am at the old job of counting cars again. Jim and Margaret left on the evening of the 17th and Jim turned in 8,410 visitors for the month, up to that date. So this month's figures are jim's except the last five days. On Sunday the 19th, Joe and I checked the Barry Mohun percentage of registration again and found it quite accurate. Barry's six month's count showed that 14 per cent of the visitors voluntarily registered; last Sunday we had 654 people at the Heart of the Sands in 12 hours and less than 13 per cent registered. The difference of one per cent from Mohun's count was probably due to the fact that it was terribly hot at the registration box in the heat of the day, and people refused to get out of the cars to sign their names. Accepting Jim's count and using the Mohun percentage for the entire month we had 10,392, which shows the two methods are not so far apart.

On the 19th of this month we had two visitors from Maine, four from New York, three from Maryland, four from New Jersey, two from Florida, four each from Michigan, Mississippi, and Louisiana. We had two car

WHITE SANDS (CONT.)

loads from Mexico City with several from California, Colorado, Missouri, and the usual percentage from Arizona, Texas, Oklahoma, Kansas, and adjoining states. It is interesting to note that the Doctor from Maine thought the Sands were beautiful, but we "should see the desert of Maine"; while the teacher from Galveston conceded that we are on a par with the Gulf of Mexico itself, while many of the visitors bemoaned the fact that we do not have "enough publicity". These always strike a popular chord with me. I regret every day that more people do not know about the great White Sands. Don't you believe, Boss, that it is about time for us to take it up with Miss Story or some one to see if we can not get a regular Park Service bulletin?

The real event at White Sands this month was the awarding of the contract for construction of 26 miles of finished Federal Highway through the monument and closing the last gap in the road to Las Cruces and on to California. The contract went to Peabody of Santa Fe for \$156,000 and should be finished for the winter travel.

It pleased me this week to get Dr. Charlie Gould and Gene Baird together for a half a day. When I first met Dr. Gould several years ago he told me that Eugene Manlove Rhodes, of Saturday Evening Post fame, was one of the best friends he ever had, though he had never seen him. Later I found that Dr. Gould had every book that Gene Rhodes had ever written, most of them autographed and they were really a part of his very life. So you can imagine Dr. Gould's pleasure to find that Gene Baird is living at the place where Rhodes' bank robber in Paso Por Aqui found the sick Mexican family and took a week's time to see that they were cured, forgetting that the sheriff was after him. And the sheriff, Pat Garrett, when he caught him, decided that a man who had saved the lives of a family on the desert had done more good than he had done wrong in robbing a bank. So he bought the robber a ticket and shipped him on to St. Louis. Dr. Gould took a picture of the dugout, at the home of the Mexican family with Gene Baird at the side of it. He also got a picture of the Wildy Well and corral where the robber's horse gave out and he roped a steer and rode him away. It was a gala day for Dr. Gould and Gene Baird and incidentally Gene broke down and guided Dr. Gould all over the west side of the lake and the surrounding country. You know it takes Gene Baird to show you that country. He has lived there 41 years.

We had a light rain on the White Sands road this week and Joe got on to it immediately with the drag and filled the wind-blown holes better than I expected. One more dragging after a rain should bring that road back to its old time condition.

I note that the men on the drainage ditch north of the buildings have the job about completed and Joe is putting some of the finishing touches on with the big Wehr grader and fresno.

WHITE SANDS (CONT.)

Last week we were honored with a short visit from Miss Louise Boillin, a teacher in the New Mexico Junior College at Portales and a niece of Miss Isabelle Story. During the month we had Carroll Miller and family, Natt Dodge and family, Lyle Bennett, Chuck Richey, Jack Diehl and wife, Hugh Miller and Christine, and Mrs. Folk, the only lady member of the Park Service Advisory Board.

During the summer months evening parties are always popular at the great White Sands and scarcely a night passes without some sort of a social function there. Saturday night, two weeks ago, I found 37 cars--almost 200 people--there at 9:00 p. m. with no unusual entertainment. And last Tuesday night the Alamogordo firemen gave their annual "chicken fry" with 165 pounds of fried chicken, 3 gallons of gizzards, 75 to 100 pounds of steak and all the trimmings. No, there wasn't a thing left except possibly a few necks and shin bones. I think they all accord it a very successful party. It was local, to be sure, but there was the District Judge and his District Attorneys, interpreters, and the rest of the crew, the Mayor of Alamogordo, newspaper men, bankers, merchants, and friends from all over the country. Personally, I like the friendly feeling which the local people have towards the great White Sands.

*****SWM*****

Before we ask for any special White Sands pamphlet, Tom, let's get straightened around and get somewhat prepared to take care of our visitors. This new road, glad as we are to see it come, is going to keep us torn up for several months and our museum plans are yet in the formative stage. Also, I am inclined to believe that the one man on duty there as ranger will be run almost to death with the rush of visitors we now have. I would like at least to get a second man on the job before we raise the number of visitors above the ten thousand for the present month.

Wish I could have been along with Doc and Gene that day, for I am a Rhodes fan myself and then they are both such fine fellows to be with. It looks a little like Gene Baird might settle down and stay a while doesn't it, after looking the country over for the first 41 years?--F.P.

*****SWM*****

AZTEC RUINS

By T. C. Miller, custodian,
Aztec, New Mexico.

Visitors this month, 1,873; total since October 1, 11,710.

GENERAL

June has been a fair month for travel and weather. Travel was light

AZTEC RUINS (CONT.)

the first part of the month but picked up in the latter part. Highway U. S. 550 from Aztec to Farmington is now being oiled. Also, the entrance road to this monument is receiving oil treatment. Main highways are mostly good. Construction work causes little delay to travel as traffic is maintained in most cases. However, much travel is going around us to the West and North while our road is under construction. Cars come in here splashed with oil, and some of them have remarked that the road is a mess, but a place that rates oil is worth looking into. When the road is finished it will greatly increase the travel to this monument. We are running all the visitors now that we can take care of efficiently and when one of us takes a day off the other one is swamped. Our heavy travel is just starting.

The custodian was absent from the monument on annual leave from May 25 to May 31. Had a very short but pleasant visit with Jim Felton at White Sands on May 30.

MONUMENT INSPECTIONS

I made a trip to Chaco Canyon on June 9th. Much improvement was noted at the sand bed at Escavada Wash. The sand has been shaled again and cars can probably cross there all summer, fall, and winter, but it will be bad again during the spring winds.

Ranger Peterson and Mrs. Peterson arrived en route to Hovenweep and Yucca House National Monuments. On June 10, Ranger Brewer was assigned as Pete's guide, in order that Pete see all the different groups of Hovenweep Ruins in the shortest length of time, also to pass on to Pete the information that it took Jimmie all last summer to learn. Jimmie returned on the 11th. And Pete was left wondering how he would keep the Hovenweep Mosquitos from eating them. Brewer reports that all groups were visited except Cajon.

WEATHER STATISTICS

Maximum temp. (June 4)	- - - - - 88	Clear days	- - - - - 16
Minimum temp. (May 31)	- - - - - 34	Cloudy days	- - - - - 10
Precipitation	- - - - - -1.26 in.	Partly cloudy days	- - - - - 5

NEW EQUIPMENT

A new typewriter was received June 1.

MAINTENANCE

The roof on the Custodian's residence was repaired and waterproofed during the month. Much has been accomplished on ground cleanup.

AZTEC RUINS (CONT.)

RANGER AND GUIDE SERVICE

Visitors register, Ranger's table, and bench were moved from the interior of the administration building to the front porch June 5. This places the Ranger in a position to greet the visitors immediately upon their arrival, register them, then open the door to the museum lobby. Museum time starts when the visitor enters the museum building. The starting and stopping time is clocked right on the dot. To date, this system works well except that the Ranger cannot hear the telephone ring from the museum porch. This handicap can probably be eliminated by installing an extension line and bell from the Custodian's office to the lobby, when additional funds are available.

NYA PROJECT

A little additional help has been received on grounds during the month through the cooperation of the National Youth Administration. Fifteen, two and one-half hour man days have been received to date. While this project may develop and prove to be worth while later on, this service has been unable to get boys between the ages of 18 and 25 years to work for the \$14.00 per month.

NATIONAL PARK SERVICE OFFICERS

We were honored by a visit from Drs. Bryant, Gould, and McDougall on May 26th. Custodian McKinney was here on June 17th and 20th. Ward Yeager, National Park Service forester, visited the monument June 22. Natt N. Dodge arrived on the 20th and departed at noon on the 21st.

USE OF MONUMENT FACILITIES BY THE PUBLIC

On the evening of June 19th an unsolicited wedding party took over the Great Kiva for their ceremony, after making special arrangements by telephone the day before.

Miss Margaret Virginia Goldsbury, Los Angeles, and Mr. Arthur H. Greer, Jr., of Durango, Colorado, were married by Rev. F. D. Painton, of Aztec.

Forty-nine friends and relatives witnessed the ceremony. Following the wedding ceremony a fine wedding supper was served on the porch of the administration building.

TRAVEL

1,873 visitors entered the Monument in 503 automobiles, coming from 39 states, the District of Columbia, and territory of Hawaii. Foreign countries represented were Canada, China, and Norway.

AZTEC RUINS (CONT.)

Total travel since October 1, 11,710 people; travel for the corresponding period of last year, 7,560--an increase of 4,150 people.

*****SWM*****

It is certainly good news to hear that the approach road from the highway up to the monument at Aztec is about completed. It was really a very dangerous little piece of road in the old days when it got wet and we always dreaded getting a report of a fatal accident on that short stretch.--F. P.

*****SWM*****

GRAN QUIVIRA

By George L. Boundey, custodian,
Gran Quivira, New Mexico.

Visitors this month, 553; total since October 1, 2,167.

The month has been dry, with high winds and much dust. Crops here are almost a complete failure. The beans, where there was enough moisture to bring them up, were all cut off by the blowing sand. Very few of the farmers have sufficient credit to purchase more seed for re-planting.

We have had a slight increase in number of visitors this month and have had some very interested people. Three scrapers are at work on the Carrizozo-Gran Quivira road and an increased number of visitors are already coming in over the new highway, although none of them are bragging much about road conditions.

Junior Park Naturalist Dodge and family from Casa Grande visited us the forepart of the month and we did enjoy their visit **very** much. On June 22, Geologist Gould from the Santa Fe office spent some time at the monument.

Our rain gauge is of little use unless we dump the sand out at least three times a day. By driving an iron post down on each side of it we have at last prevented it from blowing away.

We had three one-hundredths of an inch of rain last night and by getting out early with the scraper have put the approach road in pretty good shape.

We enjoy our herbarium case very much, one side takes care of the plants nicely and we are using the other half as a filing case.

We did a little repair work on the walls during the month and one especially bad place has been put in good repair.

GRAN QUIVIRA (CONT.)

Probably due to the exceedingly dry weather there are many more nests in the vicinity of the ruins than in past seasons. There are more than a dozen pairs of Black-Headed Grosbeak nesting in the vicinity. Night drinking from the watering places is much greater than last year.

We have had several campers during the month. When told of the many other ruins in the vicinity almost all parties are interested and if a guide were available almost all of them would like to camp. Owing to the many wood roads in the forest it is almost impossible to direct them without an experienced guide.

*****SWM*****

We got a kick out of George's diary this month where he spoke of that party coming in and asking him to guide them to the ruins which he thought he had found and that they had the same hallucination he had; they saw some ruins there too.

We didn't mean to doubt your judgment on whether or not you found ruins, and you may have found a church there, but before we give up the name "Gran Quivira" to it, we want to see two churches, an old and a new one. We continue to think that you have the old and new "Tabira" churches right there on your monument, George.--F. P.

*****SWM*****

TUMACACORI

By Louis R. Caywood, custodian,
Box 2225, Tucson, Arizona.

Visitors this month, 856; total since October 1, 12,140.

The visitor count for the month is 856. This figure is quite a drop from 1,429 of June, 1937. Perhaps the reason for such a slowing up in visitor travel is accounted for by unsettled business conditions. Many of the visitors are local people who come to see the new museum building.

The Boss and Dale King were here on June 9 to see how far the installation of the museum exhibits had progressed. Mr. and Mrs. G. G. Philp also came on that day.

On June 10, Mrs. R. E. Folk, Nashville, Tennessee, of the National Park Service Advisory Board, accompanied by Mr. J. H. Haile, of Phoenix, Arizona, who is CCC Inspector for the National Park Service in the state of Arizona, were monument visitors.

On June 21, the monument was visited by Mrs. Cora Everhart and her son, from Elgin, Arizona. Mrs. Everhart was the teacher of the local grade school fourteen years ago, and for several years prior to that

year. She reported that her family has a small bronze bell which she thinks may have come originally from the mission church at Tumacacori. The bell is about four inches high and approximately the same diameter; it bears a date which the son remembered as 1758, decorative designs, and words which they could not decipher. This bell was found sometime around 1910. Other similar bells are in the possession of Mrs. Henry Wood, of Elgin, and (probably) Mr. L. W. Klone, of Elgin.

During the month, a man and wife from New Mexico, visited the mission and told how their Uncle George came here looking for the "Padres' Mine" about 25 years ago. The map that Uncle George got from a Mexican led him to a great landslide, and that was the end of the search. However, according to the couple, Uncle George found the entrance to the tunnel which is alleged to lead from the church to the river. For reference, this man's name is G. W. Reynolds, Box 461, Willcox, Arizona. He is upwards of 80 years of age now. Ranger Cronyn contacted this party.

During the month several projects were completed. The cemetery wall was built up to its original height with adobes so that a brick capping can be laid over the top. The niches where once stations of the cross were placed by the venerable Franciscans were repaired and are ready to be plastered.

The adobe barrow pit was made smaller by dumping the remains of the old adobe pile into it.

The clothes line posts had rotted and were replaced with steel posts.

A ramada was built on the northwest section of the custodian's quarters. This helps considerably in maintaining a degree of coolness in the house.

Theodore Cronyn, formerly assistant engineer, ECW, of Region III, Santa Fe, New Mexico, has been appointed Park Ranger at Tumacacori National Monument. Mr. Cronyn has been here since April 30 as a per diem guide.

As reported in the March Monthly Report of this year, the water table has been greatly lowered because of the drilling and use of a number of large deep wells with pumping capacity ranging from 350 to over 1,000 gallons per minute. The old well on the monument is of no further use even if it were needed. The old mission irrigation canal that runs through the monument is dry because the Santa Cruz River has completely dried up. It would seem that the government and the people in the valley who are suffering because of this drop in the water table would have recourse by law to certain riparian rights, especially those living along the banks of the old mission irrigation canal.

TUMACACORI (CONT.)

Of the trees that were growing along the canal bank on the monument, fourteen peach trees and one weeping willow tree were replanted to locations where they could be watered. All are doing fine under the care of Ranger Ted Cronyn. In addition to this replanting, considerable new planting has been done this year. Eight black fig cuttings from Amado, Arizona, which are supposed to be descendants of the original mission figs, are in fine shape. Six mulberry trees and thirty-five pomegranates obtained from the Arizona State Highway Nursery near Glendale, Arizona, seem to be doing well. Ants have stripped the leaves from a few of the pomegranates, but they may live.

Of the year-old trees and shrubs brought down from Saguaro National Monument by Supervisor William Burnham, CCC Camp SP-11-A, twenty-six palo verdes, six acacias, and one mesquite have been planted at various places around the monument. They could no longer be kept in the cans in which they were received because of lack of root space and also the summer heat. All of these young trees are doing remarkably well under careful watering.

Mr. D. W. Egermayer, park ranger at Casa Grande National Monument, has offered his services for a planting plan for the museum patio. I have been looking forward to such a plan with very much interest, as the trees and shrubs planted here now are only temporary, due to the fact that they had to be planted to be kept alive. I missed Mr. Wirt, regional forester, and Mr. Yeager, assistant forester, on their visit here last month so I do not know what their plans are. As far as missions go I do know that some of the fathers are very proud of their gardens and have plots of flowers, cacti and vegetables besides the shrubs and trees. I don't see why the patio here at Tumacacori could not be laid out to have some of the more common flowers such as poppy, verbenas, larkspur, and hollyhock. Then a section could be planted with vegetables and if room were left, a small cactus plot could be added. Thus a very interesting talk could be made to visitors along a pathway which circled the patio. The individual visitor interest would govern the length of time spent there.

MUSEUM INSTALLATION

On May 28 two truckloads of exhibits arrived from the Western Museum Division Laboratories at Berkeley, California. Al Bicknell, custodian of Casa Grande National Monument, and Bert Floyd brought one truck and Lorenzo Moffett drove the second. Mr. Floyd and Mr. Moffett came as museum technicians from the Berkeley office. Al Bicknell took one truck back to Coolidge as soon as the exhibits were unloaded and Moffett and Floyd remained here until June 8 on installation. Hours seemingly meant nothing to them, as they were often working from 7:00 a. m. until 7:00 p. m., including Sundays. Work on the installation would probably have been completed in that time had it not been for several unforeseen set-backs. The glass did not arrive until after

they had left, so none of it could be used. Each of the twelve niches in which the twenty seven cases were supposed to fit had been carefully plastered by the contractor so that the cases would not go in. In each niche the plaster had to be removed from one or both side walls and often the ceiling plaster also had to be removed. For one case, the Mass Diorama, No. 22, the wall behind the diorama had to be cut out for a space $3\frac{1}{2}$ ' wide by 6' high by 9" deep. In all, 482 square feet of plaster was removed. The openings for three air ducts in the exhibit rooms came out below the cases. Iron gratings had been supplied and installed by the contractor, but in order to keep the case bases uniform throughout the building, these iron gratings had to be removed and the air ducts cut back so that the wooden panel bases with gratings built in could be framed into the openings. These panel bases were made in Berkeley and are all of uniform design and workmanship.

The case bases and panel bases were fitted in each niche except for one. Three transparencies in lieu of completed dioramas were installed. These transparencies depict (1) The Storming of Hawikuh by Coronado and his soldiers (2) The Expulsion of the Jesuits, and (3) The Blessing of de Anza and his men before leaving for San Francisco in 1775. Dioramas installed include: (1) Kino on the Trail (2) The Siege of Tubutama (3) Mining, and (4) The Mass. Several panel cases are partially installed, but without either top or front glasses.

Bird banding has been at a standstill during the month because of nesting activities.

*****SWM*****

That is an interesting story about the small bells and it might pay to follow up and get photographs and further details. There is a possibility they might have been mounted on a wooden wheel similar to one yet to be seen at San Xavier and I believe this wheel was turned, thus chiming the bells, at a certain point when Mass was being said.

The story about the entrance to the tunnel is also rather interesting. One story has that tunnel going up toward the hills to the west of the Mission and this one has it going east to the river. This man has seen the river tunnel and Dr. Cummings found a Mexican woman who, as a child, had been in the one to the hills.

Busy men, these priests were, building tunnels around the country like that. Brick lined tunnels they were too, notwithstanding the fact that they did not have enough burned bricks to finish the bell tower of their church, they seem to have had time and bricks to run tunnels hither and yon.--F. P.

*****SWM*****

SUNSET CRATER

By David J. Jones, park ranger,
Flagstaff, Arizona.

Visitors this month, 885; total since October 1, 3,384.

Travel to this monument totaled 885 for this month, as compared to 491 in 1937, 459 in 1936, 563 in 1935. While I do not feel that these figures are accurate, they are the best we can get for the present time. It is difficult to estimate how many of the visitors do not register, but there must be a good many. A number of the people who come on down to Wupatki say that they did not register at the crater because they thought that the road to Wupatki ascended the crater, and that they could register on their way out.

Within the next month I am going to submit my ideas to remedy the situation at Sunset Crater.

*****SWM*****

CHIRICAHUA

By Frank Fish, custodian,
Douglas, Arizona.

Visitors this month, 1,292; total since October 1, 6,524.

GENERAL

A decided drop in visitors compared with last year is shown this month. Probably your business observations on last month's trip through this region accounts for the falling off. However, June, 1937, saw us with two large parties--250 Cochise County farmers and 46 CCC boys, compared with 46 Cochise County farmers and 23 Girl Scouts this June. Our total loss for the month was 209, so according to the figures, we have had an increase in the regular run and a loss in the extra. The farmers claimed the reason for their small turn-out is "too many talks and not enough entertainment."

Employment figures are not available for this area, but the smelter at Douglas closed one furnace during the month and I have not heard of any new work starting.

The range and forest areas have been dry during the month and in some locations shallow wells have about given out. Starting with June 21, scattered showers accompanied with an electrical disturbance have wet down some of the surrounding country for the past three days. In company with some Michigan visitors, the Echo Canyon Trail was found to be one wet spot on the 23rd.

The evening of June 21, our look-out men were the first to report a fire west of the saw mill on the National Forest Service land. With 23 enrollees from the local camp, Foreman Campbell was at the fire in

CHIRICAHUA (CONT.)

good time to hold it between two and three acres. The fire started in a slash area mixed with tall grass. I went along and had a good work-out. The only reason Steve, another "Old Fire Hoss", wasn't there is that he is recovering from an infected arm. It will probably interest the foresters to find our fire organization is clicking.

GOOD NEWS

According to radio and newspaper reports, the President signed the proclamation for the extension of the monument. Boundary signs are available and a project is being set up so they can be placed as soon as the papers are confirmed.

NEW CONSTRUCTION, APPROACH ROADS

Re-alignment and widening a stretch of the county road from Willcox was started this month. Starting about two miles this side of Dos Cabezas and working toward the monument for a distance of $1\frac{1}{2}$ miles, a former section of bad road is being improved, necessitating a detour of approximately two miles. Work is continuing on the Elfrida-McNeal section of State 81 out of Douglas. All other approach roads have been maintained in fair condition.

MAINTENANCE OF WATER SYSTEM

Work in cleaning out around the monument spring has improved the water here both in quality and amount. For a few days while cleaning of the catch basin was under way, some of the mains were closed and opened at regular intervals so everyone could have a little.

NATIONAL PARK SERVICE OFFICIALS

Natt N. Dodge and family on the 26th and 27th. Luis Gastellum and H. Clay Parker, project superintendent of the CCC camp at Mount Elden, on the 16th and 17th.

PUBLIC OPERATORS

Grading for the construction of a service station along Bonita Highway by Ed and Lillian Riggs on their property is about complete, and with the materials on the job, the Chiricahua visitor will be able to get gas, oil, and incidentals before long. A store and camp cabin area is contemplated in the near future. Horseback parties from Massai Point have not proven profitable of late.

*****SWM*****

While we have not yet received an official copy of the proclamation, we have verified by the Register, the proclamation on the addition to

CHIRICAHUA (CONT.)

Chiricahua. The addition is 6,407 acres and with the 4,480 acres we already had, the monument now contains 10,887 acres. We think we now have all the land we need within our boundaries; on the other hand, we need all we have for the proper administration of the monument.

In this connection we would like to mention the courteous and thoughtful treatment we have received all through this land trade from Fred Winn, of the Forest Service, who played ball with us so handsomely.
--F. P.

*****SWM*****

NAVAJO

By William F. V. Leicht, park ranger,
Kayenta, Arizona.

Visitors this month, 55; total since October 1, 194.

From my tent house at Betata'kin the view is now most enticing. Directly in front is a thick grove of Gambel Oaks, the floor of which is carpeted with wild primroses, desert mallow, pentstemons, Indian paint brushes, columbines (not yet in bloom), and yellow mariposa lilies. Dense and jungly is the dark green thicket of black birches and aspens that border the clear cold little stream gurgling a short distance below. On the far side of the stream the ground sweeps abruptly upward, the lower slopes dotted with juniper, pinyon, and sage, and sprinkled with wildflowers; higher up, in protected shaded places, are majestic stands of Douglas fir. Still higher, is the great rampart of red cliffs.

Travelers seeking adventure in remote places have come to Navajo in greater numbers during the past month. Fifty-five persons visited the monument. Two went to Inscription House, five hiked with me to Keetseel, and forty-four have been at Betata'kin. Travel to Betata'kin was exactly double that of last month.

When improved roads have made most of the National Parks and Monuments easily accessible, Keetseel will always remain remote and lonely and difficult to reach. Nature is taking care of that. Nearly the entire lower trail is gone forever, and headward erosion in the side gullies and gorges is fast destroying the upper trail. One now clops through the streams most of the way, putting a foot down cautiously to test for treacherous quicksands; or he follows the dim sandy and rocky upper trail, up and down, and around the heads of precipitous gullies and gorges. For the ultimate in adventure I recommend a trip to spectacular Keetseel. But don't attempt it unless you are willing to endure the effort and hardship which that trip entails.

Weather conditions have improved somewhat during the past month. There were eleven days of wind--one unforgettable day, June the twelfth--when the region bared its fangs and the fiercest sandstorm of the season

occurred. On three days, light showers fell. About half the month has been clear, warm, and calm. The nights are, as usual, "blanket" nights.

Once each month I make a trip to Flagstaff, one hundred forty miles away, to purchase fresh food supplies, to have the Government car serviced, and to take a look at the "outside world". This month I went twice to that distant city, the second time on an errand of mercy. Two tourists had the sickening experience of breaking the transmission in their auto on the Betata'kin "road". I took the owner of the car to Flagstaff, where transmission parts were ordered from Los Angeles by teletype.

It is no longer advisable or safe to drive the last mile of the Betata'kin road. Cars should be parked a mile from the head of the trail. The other end of the road, the long steep hill above Shonto, over which the Indians are continually taking their horses, sheep, and goats, is not easy to negotiate during this dry season just before the summer rains.

Last Thanksgiving Day an old prospector who wandered into the Kaibito region, adjacent to Navajo National Monument, was murdered by a bad Indian of that area. On May the twenty-sixth this Indian flayed one of his wives unmercifully with a rope. The avenging wife, who had kept secret her knowledge of the Thanksgiving Day murder, told the story of it at Tonalea. The following day the Indian was captured as he was galloping towards a hide-out. He subsequently confessed to the murder of the old prospector.

Another Indian of the Kaibito-Inscription House area, disgruntled over a recent order limiting the number of sheep a family may own, remarked to a trader that he was going to wreck the Government property nearby, meaning Inscription House Ruins. The trader warned him of the serious consequences he would bring upon himself should he attempt such an act. It was probably an idle threat; nevertheless, I was greatly relieved to find the beautiful little ruin still intact when I made my inspection trip to it.

Two insolent ravens have taken up their abode in the great cave; that is, they spend the nights in it. But from early dawn to late dusk they stay in the vicinity of my tent, filching the food that I set out for the song-birds and upsetting the jars of victuals that I keep partly submerged in the cold stream. Incredible as it may seem, they made off with a small can of condensed milk, first pulling out the waxed-paper plugs, which they left in the little rock cavity of my water cooler. Their song is a raucous cawing, followed by a sharp clicking of beaks and a regurgitating noise. It sounds as if their stomachs are in a continual state of revolt. At first, I felt a bit solicitous about the ~~state~~ of their health, but now I shouldn't care if it failed them completely, for in addition to their thieving propensities, I think they are keeping the song-birds away.

NAVAJO (CONT.)

Above my tent house, and on the back-wall of an incipient arched cave, is a row of nine paintings. Eight of them represent human figures or war gods and one is a five-foot snake. The ancient artist used a hematite paint and did a painstaking job. To-day, these paintings are in an excellent state of preservation, and are well worth a visit for anyone who can tarry long enough in Betata'kin Canyon to climb up to them.

*****SWM*****

Bill seems to have had a most interesting month up at Navajo and I might say that his diary makes even more interesting reading than his monthly report. These diaries, by the way, which we have required of the Custodians for the past few months, have proved in most cases to be very interesting indeed. The men seem to think that only one or two people are going to read their diary, and they are right in so thinking, and so they are willing to relax and give us a clearer insight into the day by day trials and tribulations of the job.--F. P.

*****SWM*****

ARCHES

By Harry Reed, custodian,
Moab, Utah.

Visitors this month, 114; total since October 1, 880.

This report is for the first twenty two days of June. There are no figures available for the last eight days of May, as I was too busy in Moab, getting everything in readiness to begin work at the Arches on June 1. Since June 1, I have been in the monument every day between the hours of 8:00 a. m. and 5:00 p. m. I have not established a camp in the monument, but plan to do so in a few days. I have been making the drive from Moab every day.

GENERAL

Perhaps the highlight of this month's activities in the monument was the making of a motion picture by the Denver and Rio Grande Western Railroad Company. This film will become a part of a full-length feature picture covering the industrial, agricultural, and scenic features of Utah. Made by a professional motion picture cameraman on standard theater size film, this picture will be reproduced in thirty copies which will be placed in the circulating library of the railroad and will be shown free of charge to the public throughout the eastern states.

The official party, headed by Mr. Carlton T. Sills, Assistant Director of Public Relations, with offices in Denver, Colorado, and Mr. Richard A. Hart, Assistant Director of Public Relations with offices

ARCHES (CONT.)

in Salt Lake City, Utah, arrived in a special car which was placed on a siding at Thompsons, Utah, where they were met early the following morning (Monday, June 13) by L. L. Taylor, C. S. Thompson, and myself. We were joined near the monument by L. N. Meador and Dr. J. W. Williams. We arrived at the monument about 9:00 a. m., where we were met by Bert Newell and Von Taylor (Moab stockmen) with saddle horses and pack mules. As the party had only one day to spend in the area, only the windows section was photographed. Mr. Sills and Mr. Hart were loud in their praise of the unusual beauty of the region and the splendid cooperation given them by the citizens of Moab. Mr. Sills stated that plans were already progressing to establish circle tours from Thompsons through the Moab area and that in all probability they would be a reality by next year. The tours will eventually be extended to include the Natural Bridges and Monument Valley.

VISITORS

For the first time it has been possible this month to get an accurate check on the number of visitors to the Arches. As expected, they run considerably higher than past estimates.

WEATHER AND ROADS

Light showers fell in the monument on June 5, 6, and 22. The first fourteen days of the month were cool and delightful. Beginning June 15th, we have had high winds which at times were of almost hurricane caliber. No great amount of damage has resulted from wind, although a considerable amount of sand has been blown into the road leading from U.S. Highway 160 into the monument.

I found a drag at the point where a new spur road leads off from the temporary monument road and upon investigating found it to be the property of the Division of Grazing CCC Camp located at Dalton Wells, near the monument. With their permission I have been using this drag with good results. Although new sand comes in every day, with the drag and a shovel I have been able to keep the road in fair condition.

I have constructed three new signs along the temporary road. The first one (coming into the Arches) is at the intersection of the CCC spur road which leads to a dam now being constructed. This sign consists of a three-foot arrow on which is painted in plain letters the word ARCHES. The second sign is located at the east side of Willow Flats. The road over the flats is very good and most motorists drive twenty five or thirty miles per hour over this part of the road. On leaving the flats, one comes very unexpectedly onto a very rough piece of road. Some passengers have been pretty badly shaken up before the driver could bring the car under control. This sign, as well as the third, is marked SLOW. I feel sure these signs will be a real benefit to motorists coming into the Arches.

ARCHES (CONT.)

I have also renewed some of the signs which were brought up and installed by Jimmie Brewer last year. The desert sun and wind had damaged the paint considerably. They are now as good as new.

MISCELLANEOUS

I have had a little spare time which I have used in exploring some of the nearby places which I had not seen before. On one of these trips I climbed up the rocks just east of Adam and Eve which are near the northwest corner of the Windows Section. In a small cave at the head of a wash I found a dripping spring. There are nine seeps within a space of twenty feet. The largest of these drips at the rate of eight drops of water per minute. The ground is moist for about six feet from the base of the cliff. I believe if this was developed, a sufficient flow for drinking purposes might result.

At the same time that I was checking up on the seeps, my brother climbed the cliff and for the first time was successful in getting on top of the large formation just north and west of Double Arch. He reports a large basin on the top and immediately over the seeps described above. This basin is approximately 75 feet wide, 100 feet long and 200 feet deep. In the bottom is damp sand in which willows are growing. I feel sure this is the source of the water which I found. We plan to construct a ladder which will make accessible much of the area on top of this group which has never been seen. I hope to have complete information on this by time for my next report.

*****SWM*****

It looks like Harry had a pretty busy month at the Arches and has been doing some good work in getting his signs repaired and repainted. He speaks elsewhere of some further discoveries which he may be able to release next month, so, apparently, we don't know all about the Arches National Monument yet.

The problem of the addition to the Arches is now up to the Washington Office and I hope we can speed up action on it, as we have other plans waiting upon this expansion which is so greatly needed.--F. P.

*****SWM*****

MONTENZUMA CASTLE

By Earl Jackson, custodian,
Camp Verde, Arizona.

Visitors this month, 1,121; total since October 1, 6,304.

SPECIAL VISITORS

Park Service: June 3 - Assistant Superintendent Hugh Miller was in

MONTEZUMA CASTLE (CONT.)

For several hours. Much was discussed, and an enjoyable as well as effective visit was had.

H. A. Montgomery, Assistant Engineer in the Regional Office, was in for inspection and recommendations.

June 6 - J. H. Tovrea, Assistant Engineer, was in for an inspection.

June 14 - J. H. Tovrea was in again, on road inspection.

WEATHER AND ROADS

Precipitation-----	0	Minimum temperature-----	49
Days cloudy-----	2	Mean maximum-----	97.12
Days partly cloudy-----	6	Mean minimum-----	53.38
Maximum temperature-----	105		

With no rain, roads continue very dusty and corrugated. Every incoming road which is not oiled brings complaints from visitors. The road from Highway 79 via Cornville is still under construction, and while not as bad as last month, is still discouraging to many people. During the early part of the month our three quarters of a mile of entrance road was so rough as to cause some people to refrain from coming in. Since the fifth of the month, however, the entrance road, with its fresh coat of oil, has been excellent.

MAINTENANCE, IMPROVEMENTS, AND NEW CONSTRUCTION

The entrance road into Montezuma Castle was completed, also the cleaning up.

Maintenance has included dusting a few blisters on the entrance road, where over-rich spots exuded oil.

A Flamo hot plate was installed in the Ranger tent-house quarters.

A temporary installation was made of a gasoline pump and underground storage tank.

A new museum case (received as a gift some time ago) was installed in the museum, and now houses the mummy.

A formicary (exhibition ant nest) was constructed by the custodian and installed in the museum.

An aquarium was installed in the museum in a large south window.

Approximately 20 yards of rocks, waste from the entrance road construction, were dumped into a cut made last winter by the creek in the

MONTEZUMA CASTLE (CONT.)

river terrace in front of the museum.

ACCESSIONS

A new 16-gallon aquarium was received from headquarters during the month.

We received instructions and photographs from headquarters during the month for the use of demonstration ant nests. We made one out of moulding plaster and some old glass on hand, at a total cost of about fifty cents. It is quite satisfactory, but is one of the flat type, (horizontal type). It was equipped with ants, and they are now busily at work carrying on the normal processes of life.

We are not satisfied with a horizontal nest, however, and plan to make a vertical one, of a little different type. If anyone in the field reads this and would like to have the nest we have on hand, let me know and I will send it to you. It works all right, but I don't think it shows as much of the inner workings of a nest as a vertical type would.

I find that installing an aquarium with all the different types of fish native to these waters is not as simple as it looks. We have the perch, mud catfish, two varieties of suckers, carp, and the Bonytail. Of course, these are not all native to the West, but were, in some cases, introduced long ago and have taken over the streams. We find that a perch, one of the most beautiful of fish and one of those best adapted for aquaria, is a confirmed cannibal and trouble maker. We have a perch in the aquarium which kills all the small suckers we put there, and either the perch or the catfish at night eats the insides from these fish. This, in spite of plenty of food. So it is necessary to carefully select our fish, using quite small perch and much larger suckers, so the suckers are large enough to stay alive. It will be another week or two before this year's crop of creek minnows has grown large enough for us to secure all the size variations we need. And we may not be able to keep Bonytails at all. They require so much fresh water that it would be rather expensive for us to keep a jet of it running into their tank all the time. But we are doing a lot of experimenting, and if we learn anything we will let you know.

GENERAL

The General Land Office field party, which arrived last month, completed the survey of Montezuma Castle's boundary, and they were considerate enough to lead us back over the ground for a patrol of the entire boundary. One must commend the excellent spirit of cooperation shown by Mr. Horace M. Muscott, the head of the party, and his assistants in this work.

MONTEZUMA CASTLE (CONT.)

We were disappointed at something the boundary showed. A long and lovely pool in Beaver Creek, a quarter mile upstream above the parking area, and just a hundred yards above the eastern limit of the proposed camp ground, is mostly on private land, whereas we had thought we owned it.

Where have those leisurely vacationers gone who used to camp at Montezuma Castle? We have not had a single camper in well over a month. That is unprecedented for summer time. We wonder what that signifies. Perhaps your office will be able to boil down a few similar situations this summer into a trend. It would be interesting.

Our contacts are way off this month. I am not surprised, however, for there have been far more cases than usual this month where the custodian was not on hand to do his part in contact work, being involved in extra office work on the road job, running more errands than usual on that account, and being sick for two days. Ranger Alberts has been right on the job, and believe me, there's plenty of climbing to do now into the Castle. A very high percentage of visitors are climbing into the Castle. Perhaps this is because we have had a comparatively cool month for summer.

Museum contacts here always run low when there is only one man on contact duty, for then we let the museum go, except when there is free time from Castle trips.

What was, in some ways, our gravest administrative problem arose this month when we found the fish in the aquarium needed boiled egg. It would have been simple enough to write a purchase order for one boiled egg, but we wondered what reaction it would cause at headquarters or in Washington on some book audit to see the price of "one boiled egg" obligated. However, we could have certified as to domestic growth and production of this egg, and its producer could have made a scratch, or "x", in the presence of witnesses, for a signature on the certificate of genuineness. We at length decided, however, that since the egg had to be boiled, and if my wife charged extra for boiling the egg over what she had paid for it, the charge would have been above the going rate. So we decided to make an outright gift to the Government of the egg.

*****SWM*****

Earl asks a very pertinent question about that leisurely vacationist. Where has he gone? My own guess is that more and more people are getting away from camping and going into the cabin camps of the towns.

Incidentally, I have noticed a number of references in the last few months to the passing of the house trailer, and I am wondering what is becoming of that fellow. Suggestions will be welcomed. In part I know he has taken more to parking his trailer at a good central ground and

MONTEZUMA CASTLE (CONT.)

covering the surrounding country in his car, he returns to his trailer at night. This doesn't explain it all, however, because the figures seem to show that trailer production is on the down grade and they are beginning to go off the roads. I suppose those people will go back to the cabin grounds.--F. P.

*****SWM*****

CANYON DE CHELLY

By Johnwill Faris, custodian,
Chin Lee, Arizona.

Visitors this month, 178; total since October 1, 720.

June has been a most interesting month in many ways for de Chelly and I hate to see it pass into history. Our staff has been increased by two, officially at least, and three actually. Woodrow Spires entered on duty June 1, and William Lippincott June 16. Sally dropped in with Bill and now with the three extra we are all set and going strong. The sad part of the story being that the visitor record shows that we do not have as many visitors this June as in June as in June a year ago. But even at that, 178 visitors, with all the other work that has been going on, has kept the boys and myself plenty busy. Woody started out the first thing on the fence work at both the White House and Antelope House. That work was completed and is a most important piece of work in ruins protection. It is possible to get over the fence at many points if a person is so inclined, but it will keep out stock and that was the main purpose of the project. Woody did an excellent job, too, of getting the initials off the walls. Some of the cliffs near the ruins were marked up with dates and names, but that is reasonably clean now and does look much better.

One of the main projects this month has been the completion of the inner and outer plaster on the residence. The outside received two coats of the plaster and I believe is going to solve our problem of the wall's sluffing away. No doubt there will be minor repairs necessary, but nothing like the wear that we have experienced in the past. The inner plaster in the big room will be painted a cream color and will improve it a lot. It will make the room so much lighter. We did have a little trouble with the paint. Poor Woody and Bill did such a nice job of painting and got so much accomplished and the next morning it all cracked and peeled off. We were told that the oil in the plaster was the cause of the cracking. Well, I do not know what caused it to crack, but I do know that it was next to impossible to get the paint off, so after trying every possible suggestion even from the paint company we found that it would be easier to take off the plaster and re-plaster, which we did. The paint company tells me they have a primer coat that we can cover the wall with and then paint so that will follow after the first of our new fiscal year.

The tool and implement shed received its plaster coat and also a

CANYON DE CHELLY (CONT.)

cement floor. Both of these features add to the unit and it is one of the most complete units we have now. Bill and Woody have carefully checked in the tools and we are proud as can be of the entire set-up. Some little work with a rake and shovel will make the grading complete and then our de Chelly unit will be one that need not take a back seat for any other monument.

Among the visitors we did have this month, the Park Service was well represented. Hugh Miller was in on the first and Natt Dodge, also from Coolidge, was in last week. A few days before, Homer and Mary Hastings were in for a couple of days. Fortunately, Homer and Natt both got to see the extreme in both of the Canyons.

The Canyons have been extremely dry and going in them has been hard. It is approaching our rainy season so that we might expect some relief soon. Several trips to town this month in connection with regular and special duties were made. On one of my return trips from Gallup I stopped in at the dedication of the new Indian Hospital at Fort Defiance. It is a wonderful hospital and the program was grand. A very large crowd attended.

*****SWM*****

We were quite amused by some figures submitted with SWM 16. John-will's office force evidently wanted to show a heavy visitor contact figure and so, taking nine stations or points of contact, they figured 349 contacts on 180 visitors and called it 193 per cent contact.

That sounds fine until you stop to figure that with nine places of contact, he is shooting at a 900 per cent contact as his prize and the 193 per cent he actually got is pretty small.

Then we had a further chuckle when we found that one of the nine places of contact was the office, where had counted 100 per cent of his visitors as contacted when they registered.

By throwing out seven of his places of contact and allowing him a field trip and a lecture contact in the office on six parties on which he actually averaged 42.5 minutes, we got him somewhat below 100 per cent contact on a 200 per cent basis, which is much better than his 193 per cent contact on a 900 per cent basis.

The lecture contact as it is used at El Morro and Canyon de Chelly is a proper educational contact and we would like to have them reported and counted. But remember, we are shooting at a 200 per cent target when we add this unit of service.--F. P.

*****SWM*****

NATURAL BRIDGES

By Zeke Johnson, custodian,
Blanding, Utah.

Visitors this month, 67; total since October 1, 234.

This has surely been a freakish month; five cloudless days and every other day cloudy with nine of them black and cold. But there was no rain. We have had eight days of the worst wind I have ever seen in San Juan County. Each of those days it seemed as though the wind would blow the bridges down, but they are still standing. The country is very dry and the roads very good.

The flowers around my camp are about all gone, but in the canyons they are still beautiful--I have never seen such a lot of grass and other vegetation here. On June 3, I saw the first rattlesnake in seven years, it was on the trail to Sipapu Bridge.

On the 10th, Joseph Reuts and Louis J. Miller, two young men from Notre Dame University, came to my camp with 60# packs on their backs and stayed around the bridges for three days and then left for a two weeks trip down White Canyon. They went down the Box Canyon instead of the old Pioneer Road that leads to Hite Crossing. I made a map for them and they will try to cross the country from lower Red Canyon over Mito Mokey (?) Canyon then south to Carlisle Wash, then back through Red House and Cow Tanks to my camp. I asked them what they wanted in that country and they said experience. I told them that they would surely get it. I look for them back tomorrow.

I must tell you of my experience on June 9. At 11:00 a. m., thirteen people drove up and said that they wanted to hike to all the Bridges, so I told them to eat their lunch before starting. As they were preparing to eat, one lady asked if she could use my tent house to feed and put her baby to sleep and I told her she could and the baby was soon asleep. After lunch, we all went down to the Owachomo Bridge and climbed all over it and then when the crowd was ready to leave for the Sipapu, the mother thought that the baby would sleep until she returned. I had had a long hike the day before and there were two Blanding people along who knew the trail, so I volunteered to stay in camp and watch the baby. Off they went--mother to be back in three hours. At the end of three hours the wind began to blow and I thought that surely the tent would blow down. The baby woke and when she saw her attendant she cried long and continuously for thirty-five minutes. I did all in my power to quiet her, but she kept on crying. At last I decided to sing a few Indian songs and for twenty-five minutes I sang Bear Dances and Navajo chants until she fell asleep. I gently laid her back on the pillow and at 4:30 her mother returned and said, "I am so glad she is still asleep. After seeing that wonderful bridge, the Sipapu, I just had to see the Katchina, feeling sure that the little darling would not wake up. I'm glad that she did sleep all the time". The only way that that mother will ever know of my hour of anguish will be when little Karen grows up and re-

NATURAL BRIDGES (CONT.)

members those beautiful melodies I sang to her and tells her mother about it.

On the 22nd, 28 Boy Scouts, 2 Scout masters, a cook, and a driver came to the Bridges for two days. I have never seen such a hurricane as blew while they were here. We all piled into my two tents and thought that surely the tents would be ripped to pieces. But they still stand.

I am in town today. At 10:00 a. m., two ladies from Illinois drove up and I sent them out to the Bridges and I'll soon be on my way to camp. We will make the thirteen mile hike to all the bridges and the ancient ladder above the Sipapu tomorrow, as they say they are good hikers and want to see everything. I have word from lots of people that intend to spend the fourth at the monument.

*****SWM*****

CAPULIN MOUNTAIN

By Homer J. Farr, custodian,
Capulin, New Mexico.

Visitors this month, 2,000; total since October 1, 8,200.

I am happy to report two thousand visitors this month to the old Volcano. Mr. and Mrs. Natt Dodge were our welcome visitors on the last day of May and, of course, are included in this report. I note on the register that there has been only about three per cent registered. Of course, you understand the register is kept down town, about three miles from the monument and only a few filter into the custodian's office and register. Those registered are from thirteen states and are as shown: Colorado, 2; Illinois, 3; Arizona, 5; Oklahoma, 27; New Mexico, 12; Texas, 34; Louisiana, 5; Ohio, 3; Kentucky, 2; Pennsylvania, 6; Wyoming, 1; Colorado, 2; Kansas, 3. A total of one hundred registered.

Weather has been very good to us this month, with possibly two or more inches of rain. Grass and all vegetation are looking grand. The array of beautiful flowers on the monument is the most beautiful we have ever had.

The road on the monument is in fine condition except those places directly below sloughing portions above the road. These are continually filling with rock.

*****SWM*****

CHIRICAHUA CCC

By William Stevenson, project superintendent, Douglas, Arizona.

One hundred square yards of rock banks were sloped on Bonita Highway, three miles north of the Sugar Loaf truck trail intersection.

CHIRICAHUA CCC (CONT.)

Materials were used to widen fill slopes. Work was discontinued on this project July 15th.

A crew has been working the entire month on maintenance of the water system. The entire spring area has been excavated and filled with coarse rock and an adequate drain provided for the storage reservoir.

Work has been suspended on the Administration Building, awaiting materials for the exhibit cases.

Bridge No. 2 has been completed this month and forms are now in place for Bridge No. 1. This project will be complete by July 1.

Echo Parking Area is 100 per cent complete.

The Stone Wall in connection with the Utility Area Extension and the roof cellar for Residence No. 2 are 100 per cent complete.

Twenty-seven man days were used in fighting two fires which occurred on the Coronado National Forest this month.

Three hundred ten man days and thirty five truck days were released to the Army this month to aid in their camp rehabilitation program.

*****SWM*****

PIPE SPRING

By Leonard Heaton, acting custodian,
Moccasin, Arizona.

Visitors this month, 388; total since October 1, 1,429.

Back on the job after 14 days of leave, in which I had a very enjoyable time in the high mountains where there were banks of snow two feet deep and the nights were cold enough to almost freeze one. I attended a Scout camp of 275 boys and a grand time was had by all who were there.

For my report this month, I have very little to report, and as the time is past when this should be in your office, I will try to make it short and to the point.

ROADS

The roads are getting in pretty bad condition, full of ruts and dust, as there has been no rain this month and some grading was done that just added to the dust and rough roads. All the washes between the monument and Fredonia have bridges but one, Sand (or Reavel) Wash, that does not run much water, as it is only about one mile long. Some travel is going over the old Zion road by way of Short Creek. This road

PIPE SPRING (CONT.)

is in fair condition.

CCC ACTIVITIES

The forepart of the month I had four boys working at hauling dirt and building the two pit toilets. The carpenter work is all done but placing of the seats, which had not arrived when I took my leave.

On the 10th I turned the truck and three boys back to the Camp Superintendent and kept Mr. Brown Knight to take my place as guide and to look after the fort for the 14 days I was away. Mr. Knight seems to have done a good job while I was away, as I can find nothing to kick about. He is a rather quiet fellow, but dependable.

WEATHER

The weather has for the most part been very dry and hot, too hot for comfort, as the plant life is beginning to curl and burn. Though there have been several cloudy days and the last two days cloudy, no rain has fallen here. This month I have recorded 10 clear days; 7 partly cloudy days, and 3 cloudy days.

GENERAL

A new water tank was installed by the Army for their water storage and it is fixed so that it shuts itself off by gravity. As this tank is of metal, with no leaks, we will save water there. But I am doubtful if they will keep the water shut off that drains into their swimming pool. Anyway, I hope they do, now that it is getting so hot.

In closing, will say that I have a lot of work piled up that will keep me busy for several days, both in the fort and on the grounds outside. Then I am expecting Al Kuehl back sometime in the forepart of July. If I am to get things caught up as they should be, I will have to step on it.

*****SWM*****

MOBILE UNIT

By Gordon Vivian, foreman,
Chaco Canyon, New Mexico.

I see by your notation at the end of our last month's report that there is some question as to the permanency of the work that is being done by the Mobile Unit. We have, to date, no technicians reports or correspondence criticising individual items of the work, but I take it that it is our use of Bitumuls stabilizer in capping walls that is under fire at present. Believing this to be the case, we have stopped all capping and have built a series of test walls using different stabilized mixtures. On these we intend to run controlled tests for their resistance

MOBILE UNIT (CONT.)

to falling water. Naturally, we should have run these before, but we were handicapped by poor pumping facilities. This month we have installed a larger pump, loaned by the Indian Service, and now have an ample supply of water. Just how good a system for testing we have devised is probably questionable, but we have a large shower head which we are going to turn on the test blocks from a height. By computing the amount of water this delivers, we ought to be able to correlate it with the annual rainfall here. If this arrangement suits everyone all around we should be able to go ahead and subject the test walls to the same amount of falling water that the ruins would receive over a long period of years.

On Job 113, Pit Toilets, 55 man days have been spent on the two units since they were started the first of the month. One unit is almost complete; on the other the framing is finished and the siding is now being laid.

Ten man days were spent on drainage. Under this the seal coating was applied to the east side of the subterranean room 110 and the trench there was refilled.

The remaining 276 man days this month were expended under 1016-4, Wall Support. Twelve rooms have been completed. Of these twelve, five numbers, 106, 333, 334, 335, and 336, had repairs made to the lower portions of the walls at ground level and below. Here missing areas of veneer and patches of decayed stone were replaced. New lintels were also supplied in doorways in 106, 335, and 334.

In room 239 the east wall in the second story was originally built with a pronounced bow in it overhanging the first story. The north end of this bow had cracked away from the north cross wall of the room. This was repaired by taking down part of the wall and pouring a concrete core through the center and tying in to the north cross wall. With the core in place, the wall has been rebuilt in its original outline. In room 116, a fragment of a second story wall has been leaning far out of plumb due to the rotting of poles on which the second wall level was based. Here the poles have been replaced and the wall wedged up on the veneer so that little weight falls on the poles. The area above the repair has been respalled.

Also, on the west side of the ruin debris from an unexcavated room has pushed out a portion of the east wall on room 122. Part of this fallen wall has been replaced and the foundations to that remaining have been strengthened. The small keyhole-shaped kiva No. 59 has been repaired by inserting a reinforced concrete core through part of the wall in the southeast corner which had separated from the rest of the wall and was some fourteen inches out of plumb.

*****SWM*****

CASA GRANDE

By A. T. Bicknell, custodian,
Coolidge, Arizona.

Visitors this month, 1,794; total since October 1, 28,415.

WEATHER

Days clear- - - - -	25	Maximum temperature- - - - -	114
Days partly cloudy- - - - -	5	Minimum temperature- - - - -	52
Days cloudy - - - - -	1	Mean maximum temperature - - -	105
Precipitation - - - - -	T.	Mean minimum temperature - - -	60

The only kind of weather here at Casa Grande this month was hot weather; on only two days, the 12th and 13th, did the daily maximum fall below 100 degrees. The highest temperature reached during the month was 114, on the 5th. On the 12th, three light showers occurred in the afternoon, but all three together failed to produce enough rainfall to show in the guage. The prevailing direction of the wind was from the southwest.

GENERAL

Visitor travel to Casa Grande dropped off considerably this month, both as compared with May, which is to be expected, and as compared with June of the last few years, which is not to be expected. Total visitor traffic this month amounted to 1,794 people, a decrease of 395 from last June. Undoubtedly a good deal of this decrease is due to the hot weather, but the main cause is the general condition of business throughout the country.

Custodian Bicknell has had another busy month. At the time of the last report, he was still in Berkeley, having taken a trip to the Western Museum Laboratories there for the purpose of bringing back the remainder of the dioramas for the Tumacacori museum. Returned to headquarters the evening of May 27, then took the dioramas on down to Tumacacori the following day, returning to Casa Grande the evening of May 28. Made a trip to Phoenix on June 2, for motor parts needed to put the "Roving Ranger" car on the road for this year. Also made a trip to Tucson on the 5th, for more motor parts. Then, on June 8, he left again, to take three trucks to the new CCC Camp, NM-5-A, at Flagstaff, and bring back three more trucks for general overhauling. Returned to Casa Grande on June 10. On the 13th, a trip to SP-6-A, on business connected with the side camp here at Casa Grande, was made. Again, on the 16th, a trip was made to SP-11-A, on CCC business. Made a trip to SP-6-A again on the 23rd.

Miss Espinosa was forced to drop her work, washing and cataloging of pottery, the latter part of last month, due to lack of supplies. Then, as she had meanwhile returned to her former position with the county, when the work was resumed, Gustave Brady carried on until a shortage of funds forced its abandonment for the remainder of the fiscal year.

CASA GRANDE (CONT.)

It was also necessary to stop the work Mrs. Gipe has been doing, the repair and restoration of pottery. Until the time that lack of funds caused the cessation of all such work, Mrs. Gipe had completed the restoration of a total of 45 pieces; 24 of them this month. Ten more pieces were partially completed, some being finished except for painting, other only cemented.

Gerald Bryant, who has been working on building maintenance, completed work as follows: removed old ceiling plaster in Custodian's office and residence, replastered both rooms, painted the residence kitchen and kalsomined the walls and ceilings of the Custodian's office, museum, and headquarters offices. Painted walls and metal work in both comfort stations. Also painted Miller's kitchen, and kalsomined the walls of the bedroom and living room. Kalsomined three rooms in Soule's residence, and painted the bathroom. He also spent one day painting the cupboards in King's residence.

VISITORS

National Park Service visitors during the month include: Mr. John H. Haile, Jr., Regional Inspector of CCC work; Project Superintendent Stevenson from NM-2-A; Project Superintendent Parker of NM-5-A; Louis Caywood, custodian from Tumacacori; and Mr. and Mrs. Lippincott, the new ranger at Canyon de Chelly and his wife, who spent four days at Casa Grande before reporting for duty.

Total Travel: 1938, 1,794; 1937, 2,689; 1936, 2,274.

A total of 322 visitors, composed of 44 separate groups and organizations, made use of the picnic grounds during the month.

CASA GRANDE CCC

The shop, Job No. 50, is well on the road to completion. Only the cement floor, the interior woodwork and cupboards, and the doors, are needed to finish this project. The overhead track and chain hoist have arrived, but have not as yet been installed. Man-days expended this month, 87.

Guide and Contact Work, Job No. 53, used 111 man-days this month. Rodgers, Coyle, and Holt are still guiding visitors to the ruin and through the museum. Frank Morales left for Camp NM-2-A, at Chiricahua National Monument, for relief duty as technical service clerk; McLaughlin replaced him in the headquarters office on June 21.

Work was begun on the Oil House, Job No. 52, this month. So far, the foundations have been poured, also the foundation for the wall between the building and the shop. Some adobes have been laid. Man-days expended this month, 107.

CASA GRANDE CCC (CONT.)

Cleanup, Job No. 54, Drew 47 man-days this month. A large part of this time was spent in gathering the excess gravel from the entrance road, and storing it for future use. Also, some time was spent in general clean-up of the monument grounds and around the camp.

Making of Adobes, Job No. 55, used 18 man-days this month. A total of 820 adobes were made during the month, and were all used in the walls of the Utility Area.

Camp Maintenance - A cooler was installed in the dining room of the camp building. It is a great help to the boys during the hot weather we have been having. The camp sewer line had to be repaired again during the month, and is now working satisfactorily. The grounds around the camp have been pretty well cleaned up, and walks and roads outlined with rock and white posts, which aids materially in improving the general appearance of the area.

Personnel - Enrollees Aaron and Palmer were returned to the main camp on June 12. McLaughlin in the hospital from the 17th to the 21st of the month, and Teddy Savage was taken to SP-6-A's hospital on the 24th for treatment of an infected foot. Vic Scholz finally was able to get his long-awaited leave, and left for Los Angeles on the 18th.

Safety meetings were held each Thursday evening during the month. Attendance is required of all camp personnel.

The camp was inspected as follows:

May 25. Captain Harvey, Commanding Officer, SP-6-A.
May 26. Chaplain Probert, who held services.
May 28. Mr. Beatty, Educational Advisor from NM-2-A.
May 29. Mr. Beatty.
May 30. Chaplains O'Gann and Lenain. Mr. Lenain will replace Chaplain Probert in the future.
June 1. Lt. Willson, Commanding Officer, NM-2-A, and Captain Harvey.
June 8. Mr. Stevenson, Project Superintendent, Camp NM-2-A.
June 10. Mr. Beatty.
June 12. Mr. Beatty.
June 13. Mr. Beatty.
June 14. Mr. Beatty.
June 21. Captain Tway, Sub-district Commander, from Phoenix.
June 23. Mr. Beatty.

*****SMT*****

HEADQUARTERS

ACTIVITIES OF THE GENERAL MECHANIC

Gene Stonehocker, the general mechanic, reports the following jobs begun or completed during the month:

Painted entrance gate, and repaired the broken signs.
Cleaned truck #8116, getting it ready for a paint job.
Dismantled Cletrac brought up from SP-11-A, and found the cost of repairs to be out of all reason, so concluded to condemn it.
Built and installed cooler in CCC camp building.
Installed the cooler, rebuilt last month, in the custodian's office.
Repaired pump for water system, and put in new parts.
New battery charger assembled and installed in shop.
Put up new metal clothesline posts in quarters area.
Made a lead-lined vat for washing of pottery.
Made a tin foot-bath for the CCC camp.
Repaired electric ironer.
Loaded out equipment for Mt. Elden CCC camp; aided Mr. Chase in repairs to CCC motor equipment for NM-5-A.
Regular repair and servicing of motor equipment at Headquarters.
Made one trip to Phoenix, on June 17th, for motor parts needed at once.

NEW EQUIPMENT RECEIVED

One Blue Point open-end wrench set.
Two warehouse style hand-trucks.
Meters and rheostat for battery charger.
Souix electric polisher and grinder.
Transformers and conduit for new Utility Area.
One-ton differential geared chain hoist; also overhead tracks to be used in new shop.

*****SWM*****

BRANCH OF EDUCATION

By Dale S. King, park naturalist,
Coolidge, Arizona.

Park Naturalist King was on duty at headquarters during the entire month, except for a one-day inspection trip June 9 to Tumacacori museum, and one day's sick leave, June 6. Junior Archeologist Steen spent May 28 and 29 on a trip to Tonto National Monument to check equipment so that Ranger Onstott could leave the monument for duty at Bandelier National Monument. Steen accompanied Temporary Ranger Roland Richert to Tonto on June 1, introduced him to the archeology and natural history of the area, and returned the evening of June 2.

BRANCH OF EDUCATION (CONT.)

Junior Naturalist Natt N. Dodge spent the whole month on a field trip which included visits to several national monuments, as well as 17 days of museum preparation work at Bandelier National Monument.

Temporary Ranger-Historian Gertrude Hill assumed duty status June 2, 1938, and started work on the headquarters loan library, and associated projects.

Following is a resume of the time devoted by members of the staff to various projects:

	Hill	Stearns	Dodge	Hill	CCC
	Days				
<u>General Office Workload</u>					
Correspondence (178 letters)	9	--	--	--	--
Conference and discussion	--	--	--	--	--
With headquarters staff	1-1/2	--	--	--	--
With visiting scientists	1/4	1/4	--	--	--
With IFS personnel	1/2	--	--	--	--
Library (catalog, file, issue publications, etc.)	1/4	--	--	--	18
<u>Reports</u>					
Compiling and processing Monthly Reports	1-1/4	6	--	--	--
To Washington or Region III	1/2	--	--	--	--
Miscellaneous	--	3	--	--	--
<u>Publicity</u>					
Prepare Info. and Publ. material	3/4	--	--	--	--
Check Region III Publ. releases	--	--	--	--	--
<u>Miscellaneous</u>					
Construction (Painting, etc.)	--	--	--	--	--
Wrap and ship requested material	--	--	--	--	--
Clean-up and maintenance	--	1/2	--	--	--
<u>Research and Education</u>					
<u>Public Contact</u>					
Prepare and deliver outside talks	1/4	1/2	--	--	--
Relief guide duty at monuments	--	--	--	--	--
Office visitors (informational)	--	--	--	--	--
<u>Museum and Nature Trails</u>					
Collection and preparation	1/2	2	17	--	--
Acquire equipment and supplies	1/4	--	--	--	--
Planning	1	8	--	--	--
Arboretum, planning, planting, and maintenance	1/4	--	--	--	--
<u>Visual Education</u>					
Slide and motion picture library work	--	1/2	--	--	--
Filing prints and negatives	--	1-1/2	--	--	--

BRANCH OF EDUCATION (CONT.)

	King	Steen	Dodge	Hill	CCC
	Days				
Taking and processing photographs.	--	--	2	--	
Miscellaneous					
Bird banding and observation					
recording.	1-1/2	--	--	2-1/2	
CCC side camp educational program.	1	--	--	--	
Ruins stabilization project ad-					
ministration	1/2	--	--	--	
Mobile Unit.	1/2	--	--	--	
Southwestern Monuments Association	4-1/2	--1/4	--	--	
Field Work					
Field trips.	1	3	8	--	
Organ Pipe Patrol.	--	--	--	--	
Leave					
Annual	--	1/2	--	--	
Sick	1	--	--	--	
TOTAL (For the 26-working-day month)	26-1/4	26	27	20-1/2	

VISITORS

Lorenzo Moffett and Bert Floyd, of the Western Museum Laboratories; William Lippincott, temporary ranger at Canyon de Chelly; Custodian Louis R. Caywood, of Tumacacori; Gilbert Philp, temporary ranger, Chiricahua for the coming summer season; Dr. John Cooper, anthropologist of the Catholic University at Washington, D. C.; Father Bonaventura, Papago missionary priest; Ranger Edwin Alberts, of Montezuma Castle National Monument.

SOUTHWESTERN MONUMENTS LOAN LIBRARY

A set of lantern slide duplicates were collected and transferred to Tumacacori National Monument.

Custodian Caywood of Tumacacori National Monument was furnished with an outline of the educational pamphlet and reprint file system used in the headquarters educational offices.

An attempt was made to standardize the procedure of gift and loan acceptances in the various monument museums.

Some arrangements were accomplished concerning the project to catalog the headquarters photograph library. It is hoped that this will be accomplished at White Sands National Monument under the recreational demonstration projects this summer.

During the month, 450 feet of colored motion picture film were

BRANCH OF EDUCATION (CONT.)

exposed. When completed, this will be used to build up a reel entitled, "Glimpses of Southwestern National Monuments."

Nine dozen $3\frac{1}{4} \times 4\frac{1}{4}$ photographs were taken. These will be available for a great variety of purposes, mainly educational.

Report of the Headquarters Loan Library, by Gertrude F. Hill, Temporary Ranger-Historian.

On June 2, 1938, Ranger-Historian Hill resumed her duties in the Headquarters Loan Library. The first day was spent in discussing library problems with Park Naturalist Dale King, checking the shelves for mis-filed books, and sorting the new publications which had accumulated over a period of nine months. From the collection of 224 books, pamphlets, and periodicals accessioned during March, material for which there was pressing need was selected for immediate classification and cataloging.

Several new projects have been undertaken this month, outstanding among which is "Books Wanted"--a card file of interesting and informational publications, popular as well as scientific, ancient Indians, the Southwest, museum techniques, natural history, and other subjects needed in the work of the Branch of Education. An attempt is also being made to bring the bibliographical file on the Southwestern Monuments up to date.

Once more it was found necessary to shift the library shelves in order to make room for the newly cataloged material. At present, there are 22 cases of books, pamphlets, periodicals, and reprints in use, with five additional shelves, all full, awaiting cataloging.

Summary of activities from June 2 through June 28, 1938:

Books cataloged:-	- - - - -	-230
Cards made:		
Author:-	- - - - -	-232
Subject:-	- - - - -	-535
Title:-	- - - - -	98
Joint author and cross reference:-	- - - - -	27
Shelf list and accession record:-	- - - - -	-473
Bibliography:-	- - - - -	8
Books wanted:-	- - - - -	3
TOTAL-	- - - - -	-1,376
Books mended:-	- - - - -	7
Incoming publications:		
Periodicals:-	- - - - -	61
Pamphlets:-	- - - - -	21
Books:-	- - - - -	5

BRANCH OF EDUCATION (CONT.)

GENERAL OFFICE WORK

Library:

Sorting accessions, checking and arranging shelves, moving library: - - - - - 1 day.
Classifying and cataloging: - - - - - 12½ days.
Revising cards, mending, and marking books: - - - - - 3 days.
Reports and filing cards: - - - - - 1 day.
Office filing: - - - - - ½ day.

RESEARCH AND EDUCATION

Bird banding records: - - - - - -2½ days.
Total- - - - - 20½ days.

PUBLICITY

Additional informational sheets issued by the Washington Office were ordered to ease somewhat the burden of preparing such informational material, which is growing quite heavy.

Junior Archeologist Steen gave a talk to a local meeting of Pima Indians at Blackwater, Arizona, June 10. Attendance, 60. Time, 30 minutes. Subject: "Pima Indian Pottery Making".

MUSEUM PLANNING

Junior Archeologist Steen during the month finished the rough draft of the White Sands working plan, which will be issued within a couple of weeks, it is hoped. The publication of this plan, and its approval, will allow work to go ahead at that monument on the museum.

A preliminary case arrangement was sent to the Branch of Plans and Designs for use in the preparation of the lighting plan for White Sands museum.

Junior Naturalist Dodge completed the planning of two biology cases for Bandelier, including the writing of all label copy. He also finished the planning of three geology cases, including the writing of all label copy except the technical specimen labels to be placed with various rock types.

Park Naturalist King submitted a memorandum to the Superintendent concerning the general layout proposed for public rooms at Walnut Canyon National Monument, and cooperated with administrative staff members in some discussion of visitor circulation at Tumacacori.

MUSEUM PREPARATION AND INSTALLATION

BRANCH OF EDUCATION (CONT.)

Dodge at Bandelier carried well toward completion two biology cases, work which included:

- Three plaster casts made and painted.
- Two backgrounds painted.
- One key label mounted.
- Two frames and background completed.
- Two photographs taken.
- Two specimens collected and installed.

He also started three geology cases, including the making and painting of four plaster casts, the collecting of eight specimens, and the taking of five photographs.

Steen completed the preparation of a mounted **Tricolor** Ground Snake for the headquarters collection.

Arrangements were made to obtain insurance on several items of Spanish arms and armor which are to be loaned by the M. H. deYoung Memorial Museum of San Francisco to the Tumacacori museum.

In accordance with a request from Dr. Thomas Barbour, Museum of Vertebrate Zoology, Harvard University, Cambridge, Massachusetts, a collection of bats from the Casa Grande ruins was made, and shipped to him for identification.

The annual bird banding report to the Biological Survey was partially prepared, and all schedules shipped off to Washington.

Arrangements were initiated to attempt to clear up the somewhat heterogeneous system of bird banding permits now being used in the Southwestern Monuments. It is hoped that the Biological Survey will allow all stations to be operated under the name of Frank Pinkley, or if this is not possible, all station operators will be issued individual permits.

ACCESSIONS FOR JUNE

- 12 Photostatic enlargements.
- 65 Negatives.
- 588 Prints
- 25 Lantern slides.
- 100 Mimeograph stencil filing boxes.
- 1 Repair job on book binder.

CASA GRANDE SIDE CAMP EDUCATIONAL PROGRAM

The usual classes were held: Indians, Past and Present; Photography, Shorthand; Conversational Spanish; Conservation; Typing; Building Construction; and Auto Mechanics.

BRANCH OF EDUCATION (CONT.)

A softball team has been outfitted and **is** playing in the Coolidge Commercial League. The team has won two and lost two games as of June 28. Fourteen of the twenty-three boys in camp play ball on this team.

RUINS STABILIZATION

Some time was given to the study of methods used by the Indian CCC Mobile Unit in Chaco Canyon in ruins stabilization. Steps were undertaken to institute work projects in ruins stabilization at Aztec Ruins, Wupatki, Gran Quivira, and Tonto.

An attempt also was made to start the compilation of data which will lead to the successful casting of inscriptions at El Morro, it is hoped.

SOUTHWESTERN MONUMENTS ASSOCIATION

The formal organization of the Association was placed before the Secretary of the Interior for approval, but his action has not yet been ascertained.

The first booklet to be published by the Association received quite a little attention, and is approximately 60 per cent complete as of June 25.

FIELD TRIPS

The short trips of King to Tumacacori and Steen to Tonto have already been mentioned in the introduction to this report.

Dodge had the opportunity to visit several national monuments for the first time and get acquainted with the areas with which he has been working for the past three quarters of a year. He visited and inspected the educational work at Chiricahua, White Sands, Gran Quivira, Capulin Mountain, Bandelier, Canyon de Chelly, Wupatki, Walnut Canyon, Sunset Crater, and Montezuma Castle.

*****SWM*****

VISITOR STATISTICS

By The Boss

As nearly as we can gather the figures, the Southwestern Monuments had 28,178 visitors last month. This compares with 25,342 in June, 1937, and 23,471 in June, 1936. It looks, on the face of it, like a normal increase of visitors, but, as I study the tabulation, I am inclined to

VISITOR STATISTICS FOR JUNE, 1938 SOUTHWESTERN MONUMENTS

MONUMENT	Employees		FIELD TRIPS				MUSEUM TALKS				Unattended	Total Informational Contact	Total Travel	Percent Contact
	Per.	Temp.	No.	Att'd.	Time	Av. Att'd.	Av. Time	No.	Att'd.	Time	Av. Att'd.	Av. Time		
Arches	1		10	114	161.5	11.4	15.5	--	--	--	--	--	--	
Aztec	2		240	1639	8185	6.8	34.1	230	1519	5695	6.6	24.7	37	114
Bandelier	2	2--3	228	957	1756.3	4.2	65.7	145	523	2067	3.5	16.2	673	3158
Canyon de Chelly	1	2	47	153	697.3	3.3	148.0	6	14	253	2.3	42.5	21	1480
Capulin Mountain	1		--	--	--	--	--	--	--	--	--	--	2000	167
Casa Grande	2	3000	233	1704	9154	9.4	37.7	207	1171	4434	5.6	21.7	471	--
Chaco Canyon	1	1	111	533	733.3	5.3	38.5	92	468	2385	5.0	22.0	320	2575
El Morro	1		62	332	445.6	5.35	71.8	13	48	2330	3.7	23.2	37	1051
Gila Cliff	--	--	--	--	--	--	--	--	--	--	--	--	10	380
Gran Quivira	1	--	145	533	507.3	3.8	35.0	--	--	--	--	--	250	--
Hovenweep	--	1	--	--	--	--	--	--	--	--	--	--	25	553
Montezuma Castle	2	--	270	783	1133.2	2.90	41.5	167	549	2527	3.2	15.1	96	25
Natural Bridges	1	--	--	--	--	--	--	--	--	--	--	--	67	1332
Navajo	2	--	15	51	4130	3.4	275.0	--	--	--	--	--	4	--
Organ Pipe	--	--	--	--	--	--	--	--	--	--	--	--	150	51
Pipe Spring	1	--	43	138	1367	3.3	31.7	--	--	--	--	--	250	--
Rainbow Bridge	--	--	--	--	--	--	--	--	--	--	--	--	35	138
Saguaro	--	--	--	--	--	--	--	--	--	--	--	--	900	--
Sunset Crater	--	--	--	--	--	--	--	--	--	--	--	--	885	--
Tonto	--	1	54	239	2875	4.4	53.2	67	249	1305	3.7	19.4	23	--
Tumacacori	2	--	190	785	5700	4.1	30.0	--	--	--	--	--	74	488
Walnut Canyon	1	--	77	326	1000	4.2	13.7	299	1005	6325	3.3	21.1	924	856
White Sands	2	--	51	408	1989	8.0	39.0	--	--	--	--	--	9631	1331
Wupatki	1	--	30	156	2403	3.1	48.1	--	--	--	--	--	200	408
Yucca House	--	--	--	--	--	--	--	--	--	--	--	--	10	156
Chiricahua	1	3000	116	646	5375	5.5	46.3	--	--	--	--	--	646	--
TOTAL	25	16	1365	9237	32093	4.7	47.1	1226	5546	27015	4.5	22.0	17739	14813
Last Month	24	11	1519	7680	70293	5.0	46.2	804	4751	19253	5.9	23.9	10795	16032
Last Year			1589	8696	77892	5.4	49.0	1055	5564	20806	5.2	19.7		14260

SOME CASA GRANDE VISITOR RECORDS (CONT.)

	Days	No. Parties		Minutes		No. Visitors		Half trips
	Worked	Ruins	Museum	Ru.	Mu.	Ru.	Mu.	per day
Rodgers----	23	73	48	2494	985	337	279	5.2
Coyle-----	24	73	61	2351	1317	452	362	5.5
Holt-----	21	67	62	2130	1248	398	354	6.0
Egermayer--	24	42	35	2161	897	214	158	3.2
Bicknell---	2	1	1	18	39	3	18	---
TOTALS---	94	256	207	9154	4486	1404	1171	4.9
May-----	100	319	232	11757	5353	2232	1983	5.5
April----	113	357	242	12638	5201	3168	2716	5.3
March----	94	335	199	12159	4202	2995	2330	5.6
February-	102	462	338	15573	6826	3953	3004	7.8

Table II

Average number of half trips per day for days of week.			
	JUNE	MAY	APRIL
Sunday- - - - -	23.0	35.8	31.4
Monday- - - - -	17.6	14.0	18.5
Tuesday - - - - -	11.0	16.6	19.5
Wednesday - - - - -	11.2	17.0	18.0
Thursday- - - - -	17.0	12.8	18.5
Friday- - - - -	12.0	17.3	14.0
Saturday- - - - -	17.6	16.8	18.4

Table III

*****SWM*****

PERSONNEL

By the office force.

Mr. J. L. L. Baehr was away most of the month on vacation. He reports a pleasant visit in St. Louis and eastern Missouri.

Harry Reed has made some further discoveries of new formations in the Arches National Monument which he promises to report with photographs by next month.

Carroll Miller and Jimmie Brewer have had a busy month at Aztec and have made some rearrangement of the registration desk in order to facilitate the handling of the peak load they are expecting this summer.

Cy Harkin's had an interesting trip piloting the National Geographic Society photographer to the headwaters of the Rio Grande.

While attending to his other duties on his recent field trip, Natt Dodge picked up about 450 feet of mighty fine color film covering several

PERSONNEL NOTES (CONT.)

of the Southwestern Monuments. He is well on his way to a film which we want to call, "Glimpses of Our Southwestern Monuments".

We had a couple of very pleasant days with Bill and Sallie Lippincott at headquarters as they were preparing for the summer in the field at Canyon de Chelly.

Woody Spires is the other temporary at Canyon de Chelly and from the fine things Johnwill says of him in this report, it looks as if he is working into the program there very nicely.

Frank Morales, CCC clerk, spent part of the month at Chiricahua and during July will probably move up to Elden Camp near Flagstaff.

Don and Ruth Eggermayer spent a week end at a Prescott rifle meet, and between them brought home seven medals.

Al Bicknell has been very busy on headquarters assignments during June. At the end of the month he was delivering a couple of trucks to NM-5-A, near Flagstaff.

A good letter from Courtney Jones says they are getting the refrigerator fixed up and ready for action and gives assurance that we had not overestimated the beauty of the view from their quarters. It sounds so luxurious to speak of the "refrigerator room," doesn't it?

Which reminds us that at headquarters, Charlie Steen put a couple of snakes in the water cooler and hung a sign on the door to leave the machine on over night so his snakes would keep. Next morning the drinking fountain was frozen up and it took Strimple Coyle about two hours to get drinking water for his first visitors. That, at least, is one trouble we didn't have 25 years ago on the desert in June.

We want to thank Betty Budlong for a very good letter this month (about which, more later), and an invitation, seeing that the Boss made the trip to White Sands so well last month, to come on up to El Morro. The Boss says, "Sorry, Betty, but El Morro is a lot nearer Heaven than White Sands, and Doc seems to think that if I get that far up They may take me in. So Hugh will have to do the visiting at El Morro (Doc. not seeming to have any fear of their taking him in) while I stay in the lower country".

Vic. Scholz, our CCC mimeograph operator, took a short vacation and went to the coast, getting back in time to put this report through his mill.

Alfred and Bernice Peterson, who are on the Roving Ranger job for the summer, report a plague of biting gnats giving them a lot of trouble at Hovenweep where they have headquarters.

PERSONNEL NOTES (CONT.)

Teddy Savage, who is helper to Machinist Stonehocker, is up with Al in the cool around Flagstaff at NM-5-A today, but they will both get warmed up tomorrow when they come back.

We were sorry to see in George Boundey's diary that his oldest boy is ill and hope he comes around all right rapidly.

Jim and Margaret Felton left White Sands for their new assignment at Fort Jefferson on June 16. We all wish them good luck on the new job.

Roland Richert is closing his first month as a temporary ranger at Tonto and seems to be having a good time and doing good work.

Ed. Alberts, from the Montezuma Castle, was in for a short time one day this month on a rush trip to headquarters. It was a pleasure to tell him that he also was doing good work according to several of his visitors who afterward turned up at Casa Grande.

At this writing, Tov. and Polly are cooling off in the pines at NM-5-A, near Flagstaff, 'though we expect them home in the next few days.

By some sacrifices on the part of many of you, Earl Jackson is going to be able to get power and lights at Montezuma Castle. You may be sure that Earl and Betty are thankful to you for letting us clean up the loose ends of funds and throw them into this contract. It may surprise you to know that with only ten dollars lying in each account, we would have over two thousand dollars on the books.

Louis Caywood also owes the outfit thanks for a heating plant for his new building. Some of the others will benefit next year, we hope, for having so willingly helped out these boys this year.

Gilbert and Jane Philp will be at Chiricahua after the first of July. Gil. is appointed to a temporary ranger position which begins with the new fiscal year.

We are looking forward to a visit with Assistant Director A. E. Demaray, of the Washington office, at several of the monuments toward the latter part of July and the first of August.

Vic. Cahalane, head of the Wildlifers, is at Arches as we write, and we hope to have him at Navajo and several of the other monuments before he gets out of the district.

Jim Spuhler, our new seasonal ranger at Bandelier, will devote much of his time this summer to completing the museum installations at that monument. On Sundays and rush periods, he will aid in the guiding which

PERSONNEL NOTES (CONT.)

is being carried on by the boys from Tonto, Tommy Onstott and Irving McNeil.

Homer Hastings, back at his old job at Chaco Canyon, is utilizing any spare time he finds in adding to the monument's herbarium collection.

As we go to press, enthusiastic reports are flooding in about an evening "Automobile School" party given by Gene and Esther Stonehocker on their lawn. About forty persons were present, many of them from the headquarters and Casa Grande personnel. Huge quantities of doughnuts and lemonade are reported to have been consumed.

*****SWM*****

A CALL FROM THE WILDERNESS

One of the nicest things about being the boss of this outfit of ours is the two or three letters that come to me every month from some of the Honorary Custodians and Rangers Without Pay; the better halves of the Service. One of these letters this month deals with something of general importance and asks for a very little help from all of us, and so I am breaking my usual rule and speaking of it and quoting from it here.

Betty Budlong tells me that a Woman's Club of El Morro has been organized and membership is growing at every meeting so it bids fair to be successful. At the last meeting she suggested starting a library for the reading needs of the community and they not only greeted the idea with enthusiasm but promptly elected her custodian of the books. She says she is tickled pink to have the job, only as yet there are no books! She says: "For the most part I had in mind novels which are light, but not trashey, - children's books, like "Bobbsey Twins" - and books which boys of 16, 18, and 20 could enjoy. My idea was that through the Monthly Report, the members and friends of the Park Service might be apprised of our desire for the beginnings of a library here in the El Morro community and perhaps some of them might be kind enough to donate a few books. I realize that postage is high on such things and therefore I wouldn't dream of having any one individual sending more than one book. ***I just thought I would write and tell you about it all and then abide by your decision in the matter."

Well, my decision is that it is a corking fine idea and my contribution is going forward to Betty, who I am sure has been the number one contributor to the El Morro library, and there will be plenty of shelf room made somehow in that little sardine can we are calling the Custodian's residence for all the books you want to send. If you knew how isolated those folks are out through the El Morro country, and what fine folks they are, I am sure you would be prompt with your contribution.-F.P.

RUMORS

We understand that Superintendent Kahler and his boys over among the Southeastern Monuments are figuring on a type of monthly report laid somewhat along the lines of ours and does that make us proud!

We want to be the first name on that mailing list and our whole outfit will want to string along with us. We feel sure the Southeastern Monuments are going places because they already have four good Southwesterners to show them the way--Jesse and Jane Jennings went over first and Jim and Margaret Felton more recently.

To tell the truth, we would like to go over and put our feet under the table for a while and tell them about sixty nine different ways of how not to run a monthly report, for it seems to us we have tried at least that many wrong ones. Then we would like to keep quiet the rest of the time and listen to a lot of new ideas.

We are still of the opinion that the ideal monument and the ideal park are two different things; that the people come to them with different ideas and handle differently after they arrive. At least it has been our experience with western monuments that as soon as visitors get out of their cars, they want a guide and they want to be told all about the monument right now. Then they want to go through our museum if we have one and get the information there that cannot otherwise be given them. To men from the educational forces in the parks who have come over to our work, this eagerness of the visitor for information is absolutely astounding, for in the parks he wants to do his own scenery absorbing and to a large extent doesn't want to be bothered by explanations.

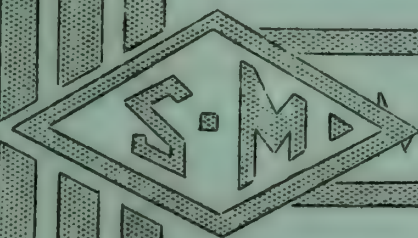
All of which means that the monuments must have more personnel per thousand visitors than the parks and that this personnel must be an extra picked body of men. We don't have protection rangers in the sense of policemen, fire guards, game patrol rangers, etc. Our whole force is an educational force. It may surprise you, for instance, to know that the men who run our two road graders have to be able to stop and answer visitor's questions and take their share of the visitor load on heavy days.

The real educational field of the Park Service lies in the monuments. Educational work should and always will be a secondary matter in the ideal park and it should and always will be a primary matter in the ideal monument.

Knowing all this, we are more than happy to welcome another group of monuments into the fold and talk over our manifold troubles and our many failures and few successes with others who have identical problems.

*****SWM*****

THE S Supplement



MONTHLY REPORT

THE JOURNAL

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OCMULGEE ARCHEOLOGY

By Jesse D. Jennings

In preparing and discussing this first monthly report on archeological work here at the Ocmulgee National Monument in Macon, Georgia, we feel that some mention should be made of the excavations and operations carried on for the past four and a half years on the Monument property or under the auspices of the Ocmulgee staff. These have been very ably directed for that long period by Dr. A. R. Kelly who has seen the development of the Macon site from the earliest beginnings to the present status. Although no longer directly and officially connected with Ocmulgee, as a monument, Dr. Kelly, in his new position as Associate Archeologist for the National Park Service, still makes his headquarters here and actually conducts exploration on one of the mound groups. The present archeological staff of Ocmulgee, Jesse D. Jennings, Acting Superintendent of the Monument, and Gordon R. Willey feel secure in the knowledge that Dr. Kelly will continue to keep Ocmulgee as his favorite among all prehistoric sites under his jurisdiction.

In December of 1933, with Smithsonian sponsorship and CWA funds, large scale excavation was begun at the Mound group that is now Ocmulgee National Monument. Dr. Kelly was appointed by the former institution as Director in Charge with Mr. J. A. Ford as Assistant Archeologist. Fortunately for the future of the entire project the city of Macon gave more than the primary impetus to the idea of development, and a local civic group led by Gen. W. A. Harris, Dr. C. C. Harrold, and Mr. L. M. Solomon continued their active support. For the next four years, until May, 1937, successive government relief agencies, principally WPA, continued to finance archeological exploration on the Macon group proper and subsidiary and related sites in Bibb county.

During this time Mound C was explored and the famous multicolored profile on the north side was exposed for public view. Crosssectionally this was a structure representing several distinct building intervals capped by colored clays. Each structure was of a truncated pyramidal shape, probably serving as a base for a temple or some important ceremonial edifice. Most surprising was a stairway leading to the top of one of the mound or pyramidal platforms. At the interior base a log tomb burial was a center of interest both to the archeologist and the passing observer.

On the North Plateau division Mound D and the Council Chamber were centers of interest for over two years. The Council Chamber, so-called, was a remarkably well preserved circular building with fifty seats placed in annular fashion about the walls, a central fire-pit, and an eagle effigy clay platform facing the entrance-way. The superstructure was of wood covered with clay. This had burned in prehistoric times and fallen in. Work of restoration was started here in 1937 through co-operation of the National Park Service and WPA. This was complete in November of the same year. Mr. James T. Swanson, Jr., architect with the Park Service,

supervised the difficult restoration. Archeologist James Ford returned from Louisiana to supervise the interior restoration for the summer of 1937.

Work on the Middle Plateau division showed an historic enclosure, a trading post of the late 17th and early 18th centuries. Documentary evidence on this is not complete, but artifacts found in relation to the fort or post indicated that it was an early English-Carolinian settlement. Several indian burials, with accompanying artifacts of definite European manufacture, are now temporarily housed and on display as a part of this unit.

At the A and B Plateau work has been carried on for the past two or three years. Most of this has been confined to an examination of the relatively small area between the two mounds, although some exploratory work has been done on the mounds proper. Between the large mound A and the smaller mound B, both mounds of the super-imposed structure type, are as many as five different occupation levels clearly and visibly defined by house levels. It is here that an ERA project is working at the present writing, actually supervised by Dr. Kelly, who is assisted by James Jackson, artist and technician.

At the detached Monument area, Lamar, a forty-acre tract two miles down the river from the Monument proper, Mr. Ford worked the first six month of 1934. Lamar A, the larger of two mounds, was partially excavated and portions of a rich village site were sampled. This yielded, as did the Council Chamber of Ocmulgee, valuable charcoal specimens which we hope may eventually be useful in dendrochronological dating. Since then both Dr. Kelly and Gordon Willey have directed work in the Lamar Village.

Theoretically, Ocmulgee became a National Monument late in 1935. Actually, the Park Service did not take over, except for planning and mapping, before the advent of the CCC Camp, Ga. NM-4, on monument property, in May of 1937. Dr. Kelly and Gordon Willey were, at that time, transferred to Park Service ECW. While WPA excavation suffered a shutdown of some months, a survey of Central Georgia archeological sites was planned and executed with a mobile CCC unit of some 20 men directed by Gordon Willey. From August 1, 1937, to April 1, 1938, eighteen village and mound sites were explored. Work consisted solely of village site stratigraphic tests and recorded area surface collections. Primary purpose was to test and amplify the ceramic chronology as established at the Macon site. The results of this survey have been important and successful in the establishment of, at least, a temporary chronology of pottery type for the Georgia area.

In connection with the stratigraphic survey a pottery laboratory was set up at the monument for immediate examination and study of the material from field. In this way laboratory results were kept abreast of the field work, and in many cases were instrumental in directing

excavation policy and procedures. This laboratory was worked in conjunction with the WPA laboratory, now located in the Macon City Auditorium, and long under the care of technician John West.

Most important results, aside from those of scientific note, coming from this increased interest in laboratory study of ceramics were the beginnings of a unified nomenclature for Southeastern pottery types. Starting out from a small nuclear group of James Ford, Preston Holder, A. R. Kelly, and Gordon Willey the idea was received handsomely by many other workers in the Southeast, and finally culminated in a "pottery type" meeting in Ann Arbor, Michigan, on May 16, 1938. Agreement was made to circulate sherds and technical data among seven different research groups. Another meeting was planned for the fall of 1938; and a group of supervisors composed of Griffin, of the Ceramic Repository, Ann Arbor, Michigan; Ford, of Louisiana State University; and Willey, of Ocmulgee National Monument were selected to act as a type judging board. The seven institutions now represented as bona fide research groups working under the unified nomenclature scheme are: University of Kentucky; University of Tennessee; Louisiana State University; Ceramic Repository; University of Michigan; University of North Carolina; University of Alabama, and Ocmulgee National Monument.

Cooperating with Ocmulgee, Regional Director Russell, Dr. Porter, and Mr. Kahler, and all other personnel of the branch of Historic Sites and Buildings have been especially helpful in sending in surface collections of potsherds taken from Park Service property throughout Region One. Respectively, on January 4, 15, February 28, and March 29, sherd collections were mailed to Dr. Kelly from the Regional Offices in Richmond for examination. These were turned over to Gordon Willey who mailed back brief archeological reports on the collections.

In Savannah, both Preston Holder and his successor Dr. V. J. Fewks have done much to aid us at Ocmulgee in the solution of ceramic problems. Dr. Fewks has engaged, on our behalf, Dr. Donald Horton of the University of Pennsylvania Ceramic Laboratory who will prepare technological and chemical reports on some of our Southeastern material.

In the past year it has been the aim of the staff to make known to scientific colleagues our work at Macon. On this account Dr. Kelly and Gordon Willey traveled to New Haven, Connecticut, late in December, 1937, to present papers at the Eastern Section meeting of the Society for American Archeology. Dr. Kelly read a brief summary of Lamar and Related Site Exploration in Georgia while Willey's paper was concerned with Preliminary Dendrochronological Studies in Central Georgia. It should be mentioned that as early as November, 1936, Willey has been engaged in some dendrochronological work on native pine. This work has been jointly financed by the Macon Chamber of Commerce, Dr. C. J. Harrold, and Mr. L. M. Solomon, the WPA, and the National Park Service.

OCMULGEE ARCHEOLOGY (CONT.)

On May 6, 1938, Dr. Kelly and Gordon Willey again read papers before the Society for Georgia Archeology at an annual meeting held in Savannah. Particularly pertinent was the topic chosen by Kelly, A Museum for Southeastern Archeology at Macon. Later, on May 14, Dr. Kelly gave a discussion on the Southeast as an Archeological Area before the Central Section meeting of the Society for American Archeology, held in Milwaukee. At the Ann Arbor pottery type conference Ocmulgee was represented by Kelly personally and by written reports by Willey.

Within the last month, the work at Mounds A and B Plateau has been continued with ERA labor. Extremely complicated and difficult superimposition of house floors and other structural remnants has slowed down the work.

With the close of the stratigraphic survey, Gordon Willey has had the first three weeks of May to catch up on notes and loose ends. But with the approval of a small project in Columbus, Georgia, on the Fort Benning Reservation, he and the field foreman, Paul Myers, have been busy again keeping 20 CCC boys at work on a late period Creek village site, probably the documented Kasita. The Park Service is extremely grateful to Mrs. Wayne Patterson of Columbus whose personal efforts have made this side project possible and to General Singleton and Staff of the military post who have done so much to facilitate our work there. Excavations should be completed by June 11 of this year.

Consolidation of our present gains from a scientific standpoint is one of the most urgent necessities at Ocmulgee. In the near future Dr. Kelly and Mr. Jennings have publications going to press with the Bureau of American Ethnology and the National Museum. Dr. Kelly's work is a general summary of the four years of excavations at Macon and related sites. Before coming to Ocmulgee Jesse Jennings spent a season at Peachtree, North Carolina, digging an historic Cherokee site. His report embodying the information garnered there is obviously related to our pre-historic cultural problems at Ocmulgee. Gordon Willey has published a short summary of dendrochronological work in this area in the Tree Ring Bulletin, V. I, No. 2, official publication of dendrochronological research.

For the future it is hoped that Dr. Kelly will be able to get out a series of manuscripts each dealing with a particular division or unit of the vast Macon site. At least four of these could be prepared from amassed data. Mr. Jennings hopes he will have time to carry on explorations at Lamar and write the wind-up report for this important type village. Mr. Willey is anxious to publish his report on pottery studies and ceramic chronology as worked out from the Stratigraphic Survey.

Perhaps most important for the whole picture of Southeastern archeology is the building and establishment of a great display and research museum at Ocmulgee. Before this report will be distributed, operations

will have begun on the basement for this structure which, if our aspirations are realized, will be a center for continued scientific investigation in anthropology in the Southeastern United States.

*****SWM*****

GEOLOGY OF ORGAN PIPE CACTUS NATIONAL MONUMENT

By Charles N. Gould.

INTRODUCTION

Organ Pipe Cactus National Monument, established by Presidential proclamation April 13, 1937, contains 330,687 acres. It is the largest national monument in the Third Region. The monument is in southwestern Pima County, Arizona. The mining town of Ajo, from which entrance is made to the monument, is 120 miles southwest of Phoenix, 140 miles west of Tucson, and 160 miles east of Yuma.

On my inspection of the monument January 31 and February 1, 1938, I was accompanied by Wildlife Technician McDougall of the Regional Office, and by Junior Park Naturalist Natt N. Dodge of Southwestern Monuments. The purpose of my inspection was two-fold; namely, to report on the general geology of the monument, and, more especially, to make a preliminary study of the water resources, with particular reference to the location of an ample supply of potable water to supply a proposed headquarters area.

Organ Pipe Cactus National Monument is located "at the end of the trail," in one of the most inaccessible parts of Arizona. Its southern boundary marches with the northern boundary of the State of Sonora, Republic of Mexico, for a distance of approximately 32 miles, extending from near boundary post 161 to post 173. One graded road crosses the monument. This road leaves the Tucson-Ajo road 13 miles southeast of the latter town, and leads south across the desert to the Mexican border, and to the hamlet of Sonoita, which consists of half a dozen adobe houses and a custom house. From Sonoita this road is marked as it continues southeast to Hermosillo, the capitol of Sonora. A few other ungraded roads lead to the various wells and abandoned mines throughout the area, but these roads are little traveled and often washed out and impassable for cars. Of these, the road from Ajo to Bates Well is most traveled.

Some years ago the U. S. Geological Survey erected a number of directional signs in this area. Some of these signs are still standing, but many of them have suffered from the more or less accurate marksmanship of passing hunters.

GEOLOGICAL REPORT ON ORGAN PIPE CACTUS NATIONAL MONUMENT (CONT.)

There are no fences either in the monument or along the international boundary and no houses except an occasional shack, or adobe house, near a well, used by cattlemen. For a number of years a rancher named Gray, and his sons, have run a few hundred head of cattle on land now included in the monument.

TOPOGRAPHY

The general topographic effect of Organ Pipe Cactus National Monument is that of a flat, level plain, interrupted by many ranges and groups of low mountains, the ranges trending north and south. In this regard the area follows the general pattern for all of this region, including northern Sonora, southeastern California, southern Arizona, and southern New Mexico. The traveler appears to be constantly in a basin, surrounded at a greater or lesser distance by mountains.

Within the monument there are two prominent mountain ranges, and several smaller groups, interspersed with three valleys; namely, Ajo, Sonoita, and Growler.

The eastern boundary of the monument runs for about 25 miles along the crest of the Ajo Mountains. The southern end of the Growler Mountains occur near the western part of the monument. Between these two ranges, which trend northwest-southeast, lies the valley of the Ajo, which is the largest topographic unit in the monument. South of the Valley of the Ajo are the Dripping Springs, or Puerto Blanco, Mountains, and the Sonoita Mountains. East of Sonoita Mountains and between this mountain and the southern end of the Ajo Mountains lies Sonoita Valley. Near the southwest corner of the monument occur the eastern end of Aqua Dulce Mountains. East of the Aqua Dulce and south of the Growler Mountains are the Quito-baquito Hills. In the northwest corner of the monument and west of the Growler Mountains is the southern end of Growler Valley.

The chief reason for setting aside this area as a national monument was the fact that here are found great numbers of an unusual species of cactus known as Organ Pipe Cactus. This form of cactus appears to be more abundant in this part of Arizona than in any other place in the United States, although occasional specimens have been reported as far distant as Tucson. This plant grows best on rocky slopes, attaining its maximum size on the south side and near the base of the mountains. Other prominent cacti are Saguaro and Cholla. Mesquite, Palo Verde, together with Ocotillo, and Desert Willow are very prominent plants also.

Another reason for setting aside this area as a national monument is the presence here of a rare species of wild sheep, allied to the Rocky Mountain Sheep, now in danger of extermination, which inhabit the mountains of southern Arizona and northern Sonora. It is reported that only a few of these sheep remain alive, and that during the past few years many have been killed by hunters.

GEOLOGY

Practically all the rocks in the Organ Pipe Cactus National Monument are of three general kinds; namely, first, very old pre-Cambrian schist, gneiss, and granite; second, Tertiary volcanic lava and tuff; and, third, recent alluvium and valley wash.

There are also a few exposures of sedimentary rocks, chiefly limestone, sandstone and quartzite, probably of Paleozoic age. Usually these sedimentary rocks are blocks or fragments occurring near fault lines which appear to have been mashed or fractured. The presence of small patches of limestone and sandstone in many localities in southwestern Arizona would seem to indicate that sedimentary rocks were once deposited over a wide area but that they have been removed by erosion.

The pre-Cambrian rocks, seen in the monument, are chiefly gray and red granite and schist. Red granite was noted both north and south of Gunsight Pass, near the northeast corner of the monument. Gray granite occurs at Growler Pass, east of Bates Well, and at a point a mile northeast of Walls Well. The Aqua Dulce Mountains, in the southwest corner of the monument, are composed almost wholly of coarse-grained granite rocks. Sonoita Mountains are also made up largely of granite, gneiss and schist.

But the greater part of the rocks which form the various mountains in this monument, and in other parts of southern Arizona and northern Sonora, are of volcanic origin. During a late geologic period, known as the Tertiary, southern Arizona and New Mexico, and adjacent areas in northern Sonora, contained many volcanoes. Vast amounts of molten lava, ashes, cinders, and rock fragments were ejected from numerous craters and crevices throughout this region.

When the molten lava cooled, it usually formed black basalt now exposed on the tops of the mountains. The light-colored volcanic ash was compacted and hardened, forming tuff. These various materials and others were piled up, one layer upon another, until in some cases a thickness of 2,000 feet of volcanic rocks was attained as, for example, in the Ajo Mountains. Dripping Spring Mountain consists largely of lava and tuff beds. Growler Mountain is made up of 1,200 to 1,500 feet of Tertiary lava, chiefly black basalt and tuff, resting on a base of pre-Cambrian, granite and schist.

In addition to the rocks already described, namely, the crystalline, granite, gneiss, and schist, which underlie all the other rocks, and the Tertiary lavas and tuffs, which occupy the greater part of the mountains, there are in the monument large deposits of alluvium, which occupy the valleys. Alluvium is a name given by geologists to rock debris or material washed out of the mountains and spread out by the action of water on the valleys and plains.

GEOLOGICAL REPORT ON ORGAN PIPE CACTUS NATIONAL MONUMENT (CONT.)

Alluvium consists chiefly of broken rock fragments. Near the mountains the boulders may be large and angular, farther away they are smaller, smooth, and water-worn. Still farther toward the valley, sand predominates, and near the stream or drainage channel the greater part of the material is silt, mud, and clay. This alluvium is sometimes cemented by lime or other minerals, forming conglomerate, but often it is loose and unconsolidated.

All the valleys between the different mountains in Organ Pipe Cactus National Monument have been filled with alluvium washed from the mountains. The thickness varies up to several hundred feet. Records of such wells as I was able to secure show the average thickness to be less than 100 feet.

WATER SUPPLY

In an arid region, such as Organ Pipe Cactus National Monument, water is of prime importance. One of the principal objects of my inspection was to investigate the water situation and make suggestions regarding the same.

From such studies as I was able to make on the ground, augmented by data secured from other sources, chiefly from Water Supply Paper 499, U. S. Geological Survey, entitled "The Papago Country, Arizona", by Kirk Bryan, it is my judgment that by using ordinary precaution it should be possible to secure an ample supply of water for the monument. As springs are very rare this water will probably be obtained from wells.

There are three known springs on the monument, namely,

Bullpasture Spring, on the west slope of the Ajo Mountains 20 miles north of the border. It is reported to be a small but permanent spring.

Dripping Spring, on the northeast side of Dripping Spring Mountain. "The amount of water is sufficient to supply a few men only."

Quitobaquito, Hot Spring, is the largest spring on the monument, located less than 200 feet north of the Mexican boundary. The temperature is 80 degrees Fahrenheit, and the flow 43 gallons per minute. The water is highly charged with mineral salts, and is scarcely suitable for domestic use.

There are six wells on the monument, the water from which is used for stock, and one hears rumors of other wells drilled many years ago which were dry. The approximate location of these wells is as follows:

Miller Well, near the northwest corner of the monument.

Walls Well is near this, but off the monument.

GEOLOGICAL REPORT ON ORGAN PIPE CACTUS NATIONAL MONUMENT (CONT.)

Alamo Well, near the base of Ajo Mountains.

Bates Well, in Growler Pass.

Powers Well, west of Growler Pass.

Cipriano Well, west of Growler Mountains, five miles north of Quitobaquito.

Blankenship Well, near Mexican line north of Sonoita.

Such data as I have been able to secure regarding these wells follows:

<u>NAME</u>	<u>DEPTH</u>	<u>DEPTH TO WATER</u>	<u>AMOUNT OF WATER</u>	<u>QUALITY OF WATER</u>
Miller	38	26	79 gal. per min.	Fair
Walls	48	19	Never dry	?
Powers	135	?	Dry	?
Cipriano	57	55	Sometimes dry	Fair
Blankenship	65	54	?	Fair
Bates	64	40	Never dry	Good
Alamo	?	?	Water most of year	?

Experience has shown that in a desert region such as this water is found most frequently in a drainage channel. I quote from page 103, U. S. Geological Survey Water Supply 499: referred to above:

"The residue of the floods from the mountains that is not absorbed or evaporated on the alluvial slopes is carried off by the main or axial streams of the valleys. It is probable that there are years when the residue is insufficient to cause the water to flow out of the valley **into** some other valley, but when there is sufficient water it flows from **valley to valley** and finally into the sea."

And from page 104 of the same report:

"A long drainage line begins with a stream that heads in granite hills east of Barajita Valley and flows about 3 miles northwestward to a narrow gap south of Walls Well. In this part of its course there is a small sandy channel which gives way in places to smooth areas of clay. From the gap and thence through Walls Well and westward for a mile or more there is a well-defined arroyo about 50 feet wide with banks 2 to 4 feet high. This channel disappears in the alluvial slopes of the Valley of the Ajo and is replaced by numerous smaller channels which lead westward toward Growler Pass. Just east of the pass is an extensive flat with clayey soils and a forest of mesquite trees, and

GEOLOGICAL REPORT ON ORGAN PIPE CACTUS NATIONAL MONUMENT (CONT.)

here here the small channels fade out. Two fairly definite channels flow into this flat from the southeast and northeast. By rather vague and indefinite channels in the flat the waters unite into a single channel with a gravelly bed which is about 50 feet wide and has banks from 3 to 4 feet high. This arroyo persists through Growler Pass and extends to a point about 3 miles southwest of Bates Well where it fades out into minor channels. These channels in turn join the main wash of Growler Valley, which pursues a northwesterly course for about 30 miles to the Mesquital, an adobe flat that is similar to the one east of Growler Pass and lies southeast of the southern point of the Aguila Mountains. From the Mesquital, a channel leads to the axial stream of San Cristobal Valley and finally reaches the flood plain of Gila River".

The two best wells within the boundaries of the monument, the Miller Well and the Bates Well, are located along this drainage line. It appears reasonable to believe that other wells so located would have similar results, and furnish plenty of water.

With regard to the supply of water for the headquarters area, my best suggestion would be that this supply be definitely determined before the headquarters have been located. In too many national parks and monuments the matter of the location of a permanent water supply appears to have been a secondary consideration.

As I now view the problem in Organ Pipe Cactus National Monument, it would appear that the best chances for a permanent water supply are from a well, or wells, located along the drainage line described previously in this report. This unnamed wash or drainage line originates in the area around the Gunsight Hills, and passes west near the north end of the Ajo Mountains where are located the Walls Well and the Miller Well. It spreads out and crosses the Valley of the Ajo in a network of rather indefinite channels, to Growler Pass. Before entering the pass, this wash is joined by others from the northeast and southeast. Bates Well, the best well on the monument, from the standpoint of both quality and quantity of water, is located along this wash in Growler Pass. From Growler Pass the drainage line finds its way northwest across Growler Valley toward Gila River.

CONCLUSION

If matters of policy and administration did not enter into the problem, I would strongly recommend that the headquarters area be located near the east end of Growler Pass. This for two reasons: First, the chances for finding an abundant supply of potable water are perhaps better here than at any other point on the monument; and, Second, near this place there are abundant examples of Organ Pipe Cactus, for which plant the monument was named, and which will doubtless prove to be one

of the chief attractions for tourists.

A road from Ajo past this point to Sonoita would be much more scenic and only a few miles longer than the existing graded road to Sonoita. The only merit of this road is that it is a straight line, otherwise the shortest distance between the points. This road was constructed for practically its entire length across a flat featureless plain. It should be remembered that road building in a region like this is relatively inexpensive. All that is needed for the greater part of the way is the clearing away of the desert vegetation and the use of an ordinary road grader.

However, if it is deemed good administration policy to locate the headquarters area along the existing straight-line road, I would recommend that a series of test wells be drilled near this road at the point where one of the various channels of the drainage line, described above, crosses the graded road. It is possible that more detailed field work at this place may show the existence of a major drainage channel, near which the well should be located.

*****SWM*****

MUSEUM PLANS

By Park Naturalist George Ruhle, Glacier National Park

It has been estimated that, with good presentation, it is possible to reach the general park visitor by means of a museum for an average of twenty minutes. In planning each museum, each exhibit, and each trail-side shrine for the park, this short average time is given full thought. People cannot return repeatedly to park museums, like city folk can to their local museums. The purpose of the museum within a national park, moreover, differs from that of its city-bred relative, in that it aims solely to tell a story that pertains entirely to its environment. The story must be told in an effective manner devoid of all complications. All exhibits are planned with consideration of the general visitor. By providing study room and laboratory space, study collections, and technical literature, apart from the exhibit room, the student, scientist, and specialist is reached beyond the popular displays. In this manner all will be served efficiently, without a cramming of knowledge down the throats of the unreceptive.

Glacier's museum program is spread over several park centers. It is planned to treat geology at Many Glacier, ethnology at Two Medicine, and biology at Sun Camp. In addition, a history museum and trailside shrines are planned for key localities in the park where they can serve most effectively in interpreting exhibits in place. The different units will not be disconnected entities, but each will contain certain features

MUSEUM PLANS AND PROPOSED METHOD OF TREATMENT (CONT.)

that will tie them together so as to disclose a comprehensive story of natural history in the park. For example, the life of the Plains Indian is the subject to be treated in detail in the Two Medicine Unit, but the role of the Indian in park history, his use of native plants and animals, and the influence of geological phenomena in shaping his life and character will be pointed out in the history, biology, and geology structures, respectively.

The reasons for having several small units rather than one large museum housed in a single building springs from several considerations:

1. If there were but one structure, only a portion of the park travel would be reached, since only a small fraction of visitors visit every important center and spend a little time at each. By distributing three museums among Many Glacier, a site on the Going-to-the-Sun Highway, and Two Medicine, educational contact with 95 per cent of the park travel is possible.

2. Since the average time limit of reaching the visitor in one museum is short, by having several located at different centers, the probability of reaching the visitor is multiplied almost by the number of museums, and the average time of visit in park museums will increase proportionately with that number. For while a certain park visitor might not return for a second visit to a certain park museum, there will be a great urge to visit another museum located at another center, separated by travel requiring several hours at least.

3. Because of the great simplicity gained, it is more effective to limit each building to a single story. The museum at Many Glacier discloses the story of the origin of the park's features. Attention is not diverted by other topics, so one is not bewildered, assimilates the story better, and is not so easily apt to forget. Elsewhere in the park one learns about Indians or about the history of the place.

4. A museum devoted to a single subject can be located at the site where that story can be told most effectively and naturally. Geology can be best explained at Many Glacier, because of the nearness and diversity of geological features, but the story of Indians should not be given here because the Indian had little use of the Many Glacier region.

5. Each structure is to serve as a base for naturalist operations. Lectures will be held in them. Trail trips will start from them. Information shall be dispensed from them. The naturalists office, laboratory, and study requirements will be served by them. Because naturalists carry on work at all of the important park centers, it is necessary that each

MUSEUM PLANS AND PROPOSED METHOD OF TREATMENT (CONT.)

should have a base for such activities.

In planning exhibits for the museums, several features are being constantly kept in mind. First of all, Glacier's museums, following the procedure recommended as best for National Park purposes, are planned not only for the display of specimens and interesting objects. They are to present ideas and stories which will assist in interpreting and appreciating the park. They shall not endeavor to impress the casual visitor with the large amount of material available for display. Instead of trying to offer as many as possible of the interesting educational features that can be drawn upon, keen discrimination is shown to stress only the most important stories as they pertain to a better understanding of the park. Each must be carefully weighed as to its effectiveness in furthering this aim. No attempt shall be made to include exhibits of all branches of science and learning. Nor is it assumed that the museums are to compete with or replace a scientific course in a University. The museum shall augment rather than replace or supercede the lectures and field trips given by the naturalists, and be an incentive for delving further into the subjects by individual personal study. The exhibits should be a mechanism in aiding the educational staff in their personal relations with the public, yet at the same time the exhibits should be self-explanatory and the museum self-operating without guiding in the event of pressure of work upon the part of the attendant and staff, or pressure of numbers of visitors at any given time.

Each museum shall present a single connected story. Each case within the museum shall be a complete sub-story in itself, a chapter in the general story which is being told, and which, taken together with other such stories, makes for a complete picture. The title of this sub-story will be announced within the key label. Every feature within the case must carry out the story as announced, or have no place within the exhibit. The features of an exhibit include pictures, drawings, maps, pertinent objects, replicas, models, and concise, carefully-worded labels.

Within Glacier Park museums there will be no place for public display of collections of specimens or relics of interest to the specialist only. Only those shall be used in exhibits that are documents in the story given. The rest shall be relegated to study collections where they will be kept, carefully identified, catalogued, and synoptically arranged in cabinets of trays and drawers for easy access to those wishing to obtain information beyond the average public exhibits. They will be made available to scientists, students, and other interested persons.

The whole treatment of the museum in Glacier Park is based on clear and simple presentation without hair-splitting arguments. It strives for unity and continuity of interpretation, attractiveness of appearance, professional finish, and ease of assimilation. The environment and atmosphere must be one of ease and quiet. The effect to be achieved must be stimulating and durable, and any added ornamentation not necessary to

the exhibit story must be excluded. For, after all, the justification of the entire housing of such exhibits is to feature the stories they have to tell, and any added attractions will detract just that much from the aims and justifications of the exhibits.

*****SWM*****

THE MONTEZUMA CASTLE SONG

(Tune: "Home on the Range")

By Betty Jackson

Oh, give me a home where there's some chance to roam,
Where the lizards and rock squirrels play
Where often is heard the song of a bird,
And the dust is not cloudy all day.

CHORUS

Home, home by the road, where the trucks and graders all day
Go roaring around to tear up the ground, and spread dust and dirty wide
by the way.

Where the air is so dusty, the zephyrs so few,
Where the doorstep is coated with oil,
Where each truck with its load makes this home by the road
Quite a nice fertile portion of soil.

chorus

How often at night when the heavens are bright
By the light of the flickering stars
Have I stood there amazed, and asked as I gazed,
"Can this silence and clear air be ours?"

chorus

But then, I'll "be blown" if I'll leave this abode
Where the work is soon going to be done,
Where seldom is heard a discouraging word,
And we'll soon get a look at the sun.

*****SWM*****

RUMINATIONS

On naming classes of people.
By the Boss.

I lay no claim to being a purist and I am free to admit that I am no expert on the English language, but we are going to take one word out of the dictionary as far as the Southwestern Monuments are concerned.

That word is "Dude".

I find that the late Mr. Webster, in his interesting little book, says that a dude is a kind of a dandy or exquisite, especially one characterized by an ultrafastidious dress and manner and other affectations; loosely, a fop.

This is not the meaning of the word as used by the Park Service.

Originally, as I understand its development in our Service, the people at Yellowstone felt the need for some technical terms which would describe certain types of people within the park. The company driver of the big bus was known as a "Gear Jammer". The temporary ranger was named a "Ninety-Day Wonder". The visitor who came in his own car, Pa, Ma, four kids and the goat, along with the camping outfit, easily fitted into the name "Sagebrusher". And the visitor who came by train, put up at the hotels, and used the company transportation, was a "Dude".

Thus used, the word carried no derogatory idea but was simply a technical term to designate a class of visitor. As it has come to be used among us in the Southwestern Monuments, however, it does have a derogatory sense and if you listen closely you can almost catch the inference of "Damned Dude". This will not do and, since we cannot now clear the term of this pitch with which it has become defiled, we will just quit using it altogether.

So the word "Dude" is taboo from now on among Southwestern Monuments folk.

And while I peck this out on old 1,104,068, Al comes in and I refer the Yellowstone terms to him for approval and then we talk over Yellowstone times and bear episodes and so on, it being between five and six o'clock and we being officially off duty. And some place in the talk, Al says: "Boss, we ought to put that term 'Cottonpicker' on the list too, for it is beginning to get that same stain on it". I believe Al is right, as he usually is.

We have no cause whatever to look down on any class of visitors. If there seems to be a dumb class among them now and then, I am willing to bet you two to one the fault lies with the man who is talking to them; at least that was the way cold logic worked it out in those cases when the speaker couldn't reach his party and I happened to be the speaker. If, with some of the most interesting stories in the Southwest to tell, we

RUMINATIONS (CONT.)

can't talk well enough to carry the unflagging interest of a fourteen-year-old boy, and that is about the mental age of the class we speak of; then we are pretty blamed dumb ourselves and instead of using a derogatory word for that class of visitor we had better invent one for that class of guide.

So the term, "Cottonpicker", as a technical term, goes overboard also.

We will just have visitors at the Southwestern Monuments from now on.

Cordially,

Frank Pinkley

*****SWM*****



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